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ABSTRACT

This fourth report of Follow Through Classroom Observation data, collected in Spring 1973 from 37 sites representing seven sponsors who participated in the planned variation studies, focuses upon the question of whether sponsors can deliver their educational systems to diverse kinds of communities. It is a study of the effects of training classroom personnel to use specific procedures in the classroom. The procedural specifications of the sponsors include the physical arrangement of the classroom, utilization of prescribed curricula, and interactions with children. A secondary analysis examines the relationships between educational processes and child outcomes. Substantial data and detailed descriptions of the procedures implemented explain and support the results. Most first and third grade teachers conformed to instructional procedures as specified by the sponsors. Time spent in reading and math and a high rate of drill, practice, and praise contributed to higher reading and math scores. Lower absence rates, higher scores on a nonverbal problem-solving test of reasoning is attributed in part to more open and flexible instructional approaches. The seven Follow Through models considered are seen as bringing different strengths to their pupils, and each is bringing advantages not usually found in traditional classrooms. (RC)

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FOLLOW THROUGH
CLASSROOM OBSERVATION EVALUATION
1972-1973

Prepared for:

DIVISION OF ELEMENTARY AND SECONDARY PROGRAMS
OFFICE OF PLANNING
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August 1974

FOLLOW THROUGH CLASSROOM OBSERVATION EVALUATION 1972-1973

By: JANE A. STALLINGS, DAVID H. KASKOWITZ

Contributors: DOROTHY BOOTH, JAY CROSS, KLARA EVANS, PHIL GIESEN, GEORGIA GILLIS, MARGARET NEEDLES, MAE STEPHEN and MARY A. WILCOX

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LIST OF TERMS

K = Kindergarten
FT = Follow Through
NFT = Non-Follow Through (Comparisons)
COI = Classroom Observation Instrument
COP = Classroom Observation Procedure
OSF = Observation Summary Form/(Variables)
PEI = Physical Environment Inventory
CCL = Classroom Check List/(Variables)
FMO = Five-Minute Observation/(Variables)

^{a} = Adult-focused variable (Example: FMO-14^a)
^{c} = Child-focused variable (Example: FMO-14^c)

Abbreviations Used on Tables	Sponsor	Abbreviations Used in Text
FW (02)	Far West Laboratory for Educational Research and Development	Far West Lab
UA (03)	University of Arizona	U. Arizona
BC (05)	Bank Street College of Education	Bank Street
UO (07)	University of Oregon	U. Oregon
UK (08)	University of Kansas	U. Kansas
HS (09)	High/Scope Educational Research Foundation	High/Scope
ED (11)	Education Development Center	EDC

The Annex consisting of the Means and Standard Deviations of each sponsor by site is bound separately and is available for consultation at SRI.

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Chapter I

INTRODUCTION

The primary aim of this evaluation of Follow Through planned variation is to determine whether educational innovators have been able to implement their programs of compensatory education in several diverse sites. In the present study, we examine the results of efforts by seven Follow Through sponsors* to deliver their models to 36 projects. In this report, the degree of implementation is defined as the extent to which a sponsor has been able to influence teachers in different sites to follow model specifications in the classroom. Two criteria were used to judge implementation: (1) how similar are the classrooms to each other when compared on sponsor selected variables? and (2) how different are sponsor classrooms from Non-Follow Through classrooms? Implementation is evaluated by observing in the classrooms and coding observable events specified by the sponsors as critical to their model.

To make an educational theory come alive in the classroom requires great effort (see Lucas, 1973; Weikart and Banet, 1973). Follow Through sponsors had a very short time in which to gain the confidence of school officials, parents, and teachers. They had to develop training procedures for teachers and aides and they had to prepare or select and sequence curriculum materials. This report does not evaluate a sponsor's impact upon parents or the community: it does evaluate the observable effects of the sponsors' influence on the teachers and aides. A second objective of the study is to examine the relationship of implementation and classroom instructional processes to student performance.

The study of implementation has too often been neglected in the evaluation of large-scale social reforms. A problem in educational innovations is that, in too many cases, the programs have not been implemented. Evaluation therefore could not yield information about either effectiveness or ineffectiveness of the innovation. Charters and Jones (1973, p. 6) call the collection of test data an "abrogation of professional responsibility" unless evaluators also measure, or at least describe differences between experimental and comparison programs (e.g., in the Follow Through program, to determine whether the behavior patterns of teachers and students are consistent with the planned innovation). The consequence of slighting the implementation factor is that "elaborately designed studies may end up as appraising non-events, with no one the wiser" (Charters and Jones, p. 5). Behind the Classroom Door (Goodlad et al., 1970) and "Planned Variation: From the Perspective of a Model Sponsor" (Weikart, 1973) provide information relevant to the implementation issue. Goodlad's study indicated that although teachers and principals of the sampled schools assumed that they had implemented educational innovations, findings from observations in the classroom revealed quite the reverse--that traditional education practices generally prevailed:

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*Sponsors of educational models who were observed Spring 1973 were Far West Laboratory for Educational Research and Development, University of Arizona, Bank Street College of Education, University of Oregon, University of Kansas, High/Scope Educational Research Foundation, and Education Development Center.

> "One conclusion stands out clearly: many of the changes we have believed to be taking place in schooling have not been getting into classrooms...there seems to be considerable discrepancy between teachers' perceptions of their own innovative behavior and the perceptions of observers" (Goodlad et al., 1970, pp. 97 and 98).

Weikart (et al., 1973) stated that Follow Through sponsors learned the hard way that there was "apparently a vast gulf between the smiles and nods of workshop sessions and actual classroom implementation of a model" (Weikart, p. 12). Despite "the enthusiasm of the summer workshops," Weikart found little change in the classrooms a few months later. These findings add confirmation to Mason's (1973) assertion that evaluation studies frequently find that the innovation "was not actually implemented in the manner specified by the developer."

Although the effectiveness and utility of innovative programs for compensatory education have come under serious question of late (Jencks et al., 1972, and Mosteller and Moynihan, 1972), these studies only evaluated the effects of single components of educational systems such as library facilities on science laboratories on achievement scores. They did not evaluate the effects on achievement of total educational programs (such as those represented in Follow Through. As Wiley (1973) has so aptly stated:

> "Educators have spent considerable space attempting to show that [Coleman's] influential study of the effects of schooling, the Equality of Educational Opportunity survey, from its original report to the most recent reanalyses of its data, has been so focussed on issues of the allocation, to schools, of resources--such as teacher training, textbooks, physics laboratories, and remedial instruction--that more general and basic sources of school effects, such as quantity of schooling, [and we might add Planned Programs based on Educational Theory] were neglected."

A. Background

Project Follow Through was established by the Congress in 1967 (the legislative authority was the Economic Opportunity Act of 1964, as amended) when it became apparent that a program was needed in the early grades of public school that was articulated with Project Head Start goals and approaches and therefore would provide a comparable educational program for economically disadvantaged children. A clearly stated purpose of the Follow Through program was the enhancement of the life chances of the economically deprived child. Deutsch (1967) hypothesized that

> "because of prior deprivation...the 'disadvantaged' child comes to school with a deficit in his readiness to learn and to profit from the academic program, as measured by standardized intelligence and achievement tests; and as they continue in school, this gap between the disadvantaged and his white, middle-class compeers widens. In short, the deficit at entry becomes cumulatively greater with each successive year."

However, an evaluation by Wolff and Stein (1966) of the first summer program of Head Start in 1965 had indicated that the initial gains of the children had not been maintained in the public school. These early findings were believed to indicate that a more sustained program of longer duration might produce lasting gains. The result was the establishment of Follow Through (Although initially planned as a service program, the limited funds appropriated for the program led to the administrative decision by USOE and OEO to establish Follow Through as a social experiment.) as a longitudinal quasi-experimental program that would evaluate the ability of an intervention program to enhance the educational achievement of economically disadvantaged children. The program administration of Project Follow Through was delegated by OEO to OE, where it remains.

Project Follow Through was originally set up in a "planned variation" research design; that is, the goal was to examine the differential effectiveness of programs based on divergent educational and developmental theories. The program began when researchers and other educational stakeholders were invited by the government to submit plans for establishing their various programs in public schools in order to test whether their individual approaches could improve the educational achievement of economically disadvantaged children. From the group that came forward, 22 were selected to implement their programs as Follow Through program sponsors. Eleven of the 22 sponsors had developed and tried their educational concepts in university settings; eight were affiliated with private research institutes and three were community developed programs (see Appendix A).

The sponsors described their educational models to an audience that included representatives from school districts around the country at a conference in Kansas City, Kansas in 1968. Ultimately sponsor models were implemented in 154 Follow Through projects within 136 urban and rural communities located in all regions of the nation. The Follow Through sponsors then faced the challenge of program implementation--including guiding the behavior of teachers toward specified sponsor goals.*

Upon being chosen by a community, the sponsor had to develop a cooperative relationship with the local school officials, the parents, and the teachers. He also needed to specify the many aspects of the program, including the activities that should occur, the materials to be used, the use of classroom aides, and the approaches to be taken toward children. Field staffs had to be developed who could train classroom teachers. Some of the sponsor's training staff were from the local community and others traveled to the site from the sponsor's home location. Most sponsors had a two-week summer training session for teachers and aides, followed by weekly, semi-monthly, or monthly inservice training and supervision of the teachers.

It was recognized early in the Follow Through program that changing teacher behavior with a resultant change in children's behavior and test scores would take a long time. Thus, it was decided that the sponsors should have a five-year period in which to try to implement their models in the communities.

In earlier evaluations of Follow Through, the major emphasis was to determine child outcome in terms of child performance. Yet it was clear that if such an effect was found, and if the effects were different from one model to another, we would not know what caused the differences. Therefore, we needed to know what was actually happening in the classrooms. In order to determine whether the sponsors were effective in getting teachers to practice their methods in the classroom, it was necessary to observe the classrooms systematically. We wanted to know whether a child's day in the classroom corresponded with the sponsor's educational prescriptions. It was evident that an observation instrument of process variables was needed because:

- Systematic observation is the only means to document some phenomena, particularly certain behavioral phenomena.
- Systematic observation is a way to obtain an objective description of treatments.
- Systematic observation is a basis for judging the extent to which the intended treatment is actually present.
- Observation can be used as an alternative to more traditional methods for assessing child growth and development.

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*Egbert (1973) provides a historical view of Follow Through.

B. Previous SRI Observation Reports

In 1968, an observation system was developed by SRI and data were gathered on a trial basis in Spring 1969. However, many of the items and the way they were scaled were thought to be biased toward sponsors whose program approaches were influenced by the writings of John Dewey. A more descriptive and less judgmental instrument was needed. Therefore in the fall of 1969, SRI with assistance from eight sponsors' representatives developed an observation system that seemed to be more objective, systematic, and fair to all sponsors' models. The procedure recorded activities, materials used, groupings, and interactions (see Chapter III for more detailed descriptions).

In the Spring of 1970, data were collected at one site each for the eight sponsors. The gathered data showed sponsors' classrooms to be conforming to many of the desired specified procedures. Teachers were teaching children in small groups or individually as specified by the sponsors, prescribed activities were observed to be occurring, and questioning and feedback systems differentiated sponsors from each other and from comparison classrooms in predicted ways.

With this success on a limited sample, observations were made the following year, Spring 1971, on two sites each for nine sponsors. The observation instrument was revised to make it possible to record additional components of models (such as the use of concrete objects for instructional purposes). At this time, also, the instrument was changed from a hand-processed form to an optically scanned form. The conversion to a computer system allowed for the examination of many more variables and enriched the analysis. Based on a factor analysis of the data, again the sponsors were found to be differentiated from each other and from Non-Follow Through comparison classrooms at both sites. In addition, an exploratory effort was made to correlate observed classroom processes with test data. These findings were presented in the second Follow Through Classroom Observation report.

The findings from the third report of observational data collected in the Spring of 1972 described an in-depth study of three grade levels (kindergarten, first, second, or first, second, third) at one site for each of twelve sponsors. It was primarily a methodological exploration since generalizations from single sites are hazardous. Data were available from a total of 146 Follow Through classrooms and 74 Non-Follow Through classrooms and included child-focused as well as adult-focused observations. The instrument was revised to accommodate the components of three newly added sponsors' models. Several sponsors had indicated that if the adults in the classrooms followed their recommended procedures, the children's behavior should reflect such adult training; e.g., if, based upon their training, the adults arranged an environment in the classroom where children could explore and solve problems independently, then children should be observed working without adults and using objects as tools to solve problems. It was not possible to observe whether, in fact, a child was solving problems; but it was possible to systematically record whether or not he was using objects while working on arithmetic or science problems. Thus, the actions of classroom adults (adult-focused) and of individual children (child-focused) were observed and recorded. The child-focused data yielded important information regarding such behaviors as child independence in learning, children teaching other children, and the dead time or waiting time a child experiences. The added child-focused data allowed not only for describing classroom teaching processes, but also for measuring such child behaviors as independence, task persistence, and questioning.

C. Present Report

This fourth report of Follow Through Classroom Observation data, collected in Spring 1973 from 37 sites representing 7 sponsors, focuses upon the question of whether sponsors can deliver their educational systems to diverse kinds of communities. It is a study of the effects of training classroom personnel to use specific procedures in the classroom. An educational theory can only be proved to be effective if the teachers and aides carry out program specifications. Such specifications by sponsors include the physical arrangement of the classroom, utilization of the prescribed curricula, and interactions with children. In this study, the following issues are addressed:

(1) Are the observed classroom programs consistent with their sponsors' stated intentions? That is, does the model show a relatively high frequency of occurrence of those elements of the program that the sponsor rated as important?

(2) Are the sponsored classrooms consistent within a site and between sites; i.e., do the four third-grade classrooms at Site A score similarly on specific program components and do they resemble the third-grade classrooms at Sites B, C, D, and E?

(3) Do sponsored classrooms differ on specified dimensions from the Non-Follow Through comparison classrooms?

(4) How do Follow Through models differ from each other? How do they overlap; i.e., are there seven separate programs? How are they distinct from one another?

All of these implementation and exportability issues would be of little interest if we did not believe that classroom practices make a difference in the growth and development of children. A secondary analysis was performed that examines the relationships between educational processes and child outcomes and addresses the following questions:

(1) How do selected classroom processes relate to scores on the following: Metropolitan Achievement Test (MAT) (Reading and Arithmetic), Raven's Coloured Progressive Matrices, Coopersmith Self-Esteem Inventory, and Intellectual Achievement Responsibility Scale (IAR)?

(2) How do selected classroom processes relate to such desired child behaviors as independence, cooperation, question asking?

(3) How do selected classroom processes relate to a child's school-absence rate?

The findings from these analyses as well as descriptions of the study procedures will be presented in the chapters that follow. The data collection effort is described in Chapter II and the variables used are described in Chapter III. A study of reliability is presented in Chapter IV, an assessment of the model implementation and exportability is given in Chapter V, an analysis of sponsor differences is presented in Chapter VI, and the analysis of the relationship between classroom process and selected student outcomes is described in Chapter VII. The summary and conclusions of the study are given in Chapter VIII.

Chapter II

DATA COLLECTION

The plan for the Spring 1973 classroom observation data collection effort was based on discussions among Follow Through sponsor representatives and staff members of USOE and SRI. The principal consideration that determined the design of the data collection effort was the necessity for providing information regarding the implementation of the Follow Through sponsored models (see Chapter I, p. 1, for definitions of implementation). In order to evaluate a sponsor's ability to implement his model in several diverse sites, approximately four first and four third grade classrooms in five sites per sponsor were selected for observation. The choice of this sampling scheme was based on an analysis conducted for planning purposes that indicated that gross differences among sites on total implementation scores could be detected, with a relatively high degree of confidence, under this scheme.

A primary consideration in the selection of the sample was the occurrence of testing in the Spring of 1973, since investigation of the relationship between teaching procedures and child test outcomes required that there be test scores for the children in the sample.

The data used in this report include observations focused on teaching personnel and individual children, classroom roster data, student test results, and teacher and teacher aide survey results (see Table 1).

This chapter contains a description of the selection process of the sample sites, classrooms, and children, as well as information about the demographic and entering characteristics of the children. It also describes the Classroom Observation Instrument (COI) and the procedures used in collecting the study data. The COI and the procedures used in the 1972 Follow Through classroom observation study were slightly modified for the Spring 1973 study.

A. The Sample

1. Selection of Sites, Classrooms, and Focus Adults and Children

a. Rationale for Selection of Sites

The primary considerations for selecting sites were:

Table 1

SITE SUMMARY OF DATA USED FOR SPRING 1973 IN CLASSROOM OBSERVATION ANALYSIS

	Cognitive Test Data						
	First Grade		Third Grade				
	Baseline*		Baseline*			Rostered	Teacher/Aide Questionnaire
Sponsor/Site	F71	S73	F69	F70	S73	F72	S73
Far West Labs							
0201 Berkeley, Calif.	-	X	X	-	X	X	X
0204 Duluth, Minn.	X	X	X	-	X	X	X
0207 Lebanon, N.J.	-	X	X	-	X	X	X
0209 Salt Lake City, Utah	X	X	-	-	X	X	X
0213 Tacoma, Wash.	X	X	X	-	X	X	X
University of Arizona							
0305 Des Moines, Iowa	X	X	-	-	X	X	X
0307 Fort Worth, Texas*	-	-	-	-	-	X	-
0308 LaFayette, Ga.**	-	-	-	X	-	X	-
0309 Lakewood, N.J.	X	X	X	-	X	X	X
0311 Newark, N.J.	X	X	-	-	X	X	X
0316 Lincoln, Nebraska	X	X	-	-	X	X	X
Bank Street College							
0502 Brattleboro, Vermont	X	X	X	-	X	X	X
0504 Fall River, Mass.	X	X	-	-	X	X	X
0506 New York City, P.S. 243K	X	X	X	-	***	X	X
0508 Philadelphia II, Pa.	X	X	X	-	X	X	X
0510 Tuskegee, Ala.**	-	X	-	X	X	X	X
University of Oregon							
0703 E. St. Louis, Ill.**	-	X	-	X	X	X	X
0707 New York City, P.S. 137K	X	X	X	-	***	X	X
0708 Racine, Wisc.	-	X	X	-	X	X	X
0711 Tupelo, Miss.**	-	X	-	X	X	X	X
0719 Providence, R.I.	X	X	-	-	X	X	X
University of Kansas							
0801 New York City, P.S. 77X	X	X	X	-	***	X	X
0803 Philadelphia VI, Pa.	X	X	X	-	X	X	X
0804 Portageville, Mo.	X	X	X	-	X	X	X
0806 Kansas City, Mo.	X	X	X	-	X	X	X
0807 Louisville, Ky.	X	X	X	-	X	X	X
High/Scope							
0901 Greenwood, Miss.**	-	X	-	X	X	X	X
0902 Ft. Walton Beach, Fla.**	X	X	-	-	X	X	X
0903 New York City, P.S. 92M	X	X	X	-	***	X	X
0906 Greeley, Colo.	X	X	X	-	X	X	X
0907 Denver, Colo.	X	X	-	-	X	X	X
Education Development Center							
1101 Burlington, Vermont	X	X	X	-	X	X	X
1103 Philadelphia IV, Pa.	X	X	X	-	X	X	X
1106 Paterson, N.J.	X	X	-	-	X	X	X
1107 Rosebud, Texas*	-	X	-	-	X	X	X
1108 Smithfield, N.C.**	-	X	-	X	X	X	X

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*Baseline test: F71 WRAT was used for those first grade sites who had entering kindergarten in 71/72.
F69 WRAT was used for those third grade sites who had entering kindergarten in 69/70.
F70 WRAT was used for those third grade sites who had entering first grade in 70/71.

**Entering First Grade Site--applies only to third grade at Site 0703 (E. St. Louis) and Site 0902 (Ft. Walton Beach). Both sites began kindergarten in 1970-71 school year.

***Third grade New York City data are not used in the analysis since a different form of the MAT was administered.

- That they were among the sites where pupil testing was to occur in Spring 1973 as part of the Follow Through evaluation;

- That each sponsor would then have a more balanced geographic distribution of sites, which included urban-rural and north-south projects;

- That each sponsor would have at least two sites which he considered well implemented.

An attempt was made to select sites that previously had been observed so as to extend the longitudinal data base for possible future observation studies.

Seven sponsors were selected for the study because they each had at least five sites that met the criteria. Six sponsors had five sites included in the study sample and University of Arizona had six sites, making a total sample of 36 sites. Within each Follow Through site, a sample of up to four first grade and up to four third grade classrooms were selected for observation, making a total of 136 first grade and 135 (Table 2) third grade classrooms observed. In each classroom, four children as well as the adults were observed. Table 2 lists the selected sites by sponsor and the number of classrooms observed by grade level. In addition, one Non-Follow Through classroom each at the first and third grade levels in each of the 36 sites (a total of 72 classrooms) were scheduled to be observed as comparison classrooms.

Locating adequate comparison groups is always a problem for large scale field studies. With assistance from a panel of educational researchers* SRI staff made a decision to pool the scores of Non-Follow Through classrooms over all sites as the standard of comparison rather than having a separate onsite comparison for each site. Some panelists suggested that a set of comparison classes for each Follow Through site be provided so that similar site characteristics would be assured. However, this alternative presented several problems: (1) The total number of Non-Follow Through classrooms was not adequate if they were divided by region or by urban/rural characteristics, (2) the relative unavailability of baseline test data due to interschool dispersion of comparison group children subsequent to the kindergarten or entering-first grade year. and (3) if the comparison were drawn from a set of Non-Follow Through and Follow Through classrooms, there was the problem of overlap in implementation processes if Follow Through classes of other sponsors were included in the pool of potential matches based on demographic characteristics. A common Non-Follow Through group, on the other hand, has the

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*The panelists included: Eugene Tucker, Louise Eckerson, and David Iwamoto of OE; Robert Linn, University of Illinois; Andrew Porter of NIE; Jane David of Huron Institute; and Richard Brandt of University of Virginia.

Table 2

CLASSROOM OBSERVATION SAMPLE, SPRING 1973

Sponsor and Sites		Number of Follow Through Classes Observed	
		First Grade	Third Grade
Far West Laboratory for Educational R&D			
0201	Berkeley, Calif.*	4	4
0204	Duluth, Minn.*	4	4
0207	Lebanon, N.H.	4	4
0209	Salt Lake City, Utah	4	4
0213	Tacoma, Wash.	4	4
University of Arizona			
0305	Des Moines, Iowa	4	4
0307	Fort Worth, Texas*	4	4
0308	LaFayette, Ga.	3	4
0309	Lakewood, N.J.	4	4
0311	Newark, N.J.	4	4
0316	Lincoln, Nebraska	4	4
Bank Street College			
0502	Brattleboro, Vermont	3	3
0504	Fall River, Mass.	4	4
0506	New York City, P.S. 243K	4	4
0508	Philadelphia II, Pa.*	4	4
0510	Tuskegee, Ala.*	4	4
University of Oregon			
0703	E. St. Louis, Ill.	4	4
0707	New York City, P.S. 137K	3	3
0708	Racine, Wisc.	4	4
0711	Tupelo, Miss.*	4	4
0719	Providence, R.I.	4	4
University of Kansas			
0801	New York City, P.S. 77X*	2	2
0803	Philadelphia VI, Pa.*	4	4
0804	Portageville, Mo.*	4	3
0806	Kansas City, Mo.	4	4
0807	Louisville, Ky.	4	4
High Scope Educational Research Foundation			
0901	Greenwood, Miss.*	4	4
0902	Ft. Walton Beach, Fla.*	4	4
0903	New York City, P.S. 92M	3	4
0906	Greeley, Colo.	3	3
0907	Denver, Colo.	4	4
Education Development Center			
1101	Burlington, Vermont	4	4
1103	Philadelphia IV, Pa.*	4	4
1106	Paterson, N.J.*	4	4
1107	Rosebud, Texas	3	3
1108	Smithfield, N.C.	4	2
	Total	136	135

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*These sites have been observed previously.

advantage of providing a constant measuring tool that doe not vary across sponsors or sites. On the basis of this discussion, the conclusion reached was that pooled Non-Follow Through classrooms would be used for purposes of comparison.*

The pooled Non-Follow Through offers a reasonable match on demographic characteristics for many sites, but as shown later (Tables 3 and 4 on pages 14 and 15) this technique does not provide a good comparison for such sites as Fort Walton Beach (0902)** where the mean baseline WRAT score for first grade children is 13 points lower than the mean score for pooled Non-Follow Through children, or for Lebanon (0207) where the mean for the black population is zero compared to a mean of 48% for pooled Non-Follow Through. Given the deficiencies of the available comparisons, the pooling procedure seems the best of the two choices. Appendix B provides discussion of the effect of demographic characteristics on classroom control systems and the positive or negative affect displayed in the classrooms. This discussion indicates that the effect of entering child characteristics (baseline WRAT, race, sex, bi-lingual language, whether or not the child had preschool) on observed classroom processes is slight. For the purpose of this implementation report (since child demographic characteristics apparently do not affect process data), we conclude that pooled Non-Follow Through classrooms form an acceptable comparison group for Follow Through classrooms even though demographic characteristics are not matched.

The decision to conduct observations at two grade levels was based upon the rationale that one grade level alone would not permit a valid generalization about the degree of model implementation. It was felt that for developmental reasons implementation at the first grade would probably be different from implementation at the third grade. First grade curriculum often focuses upon developing basic skills while third grade curriculum focuses upon using basic skills. Reasons for choosing the first and third grades rather than kindergarten and second grade were:

- It was important to see how reading and math are taught in the first grade since, in so many cases, reading and math scores are used as the basis for judging school success. Thus, how these basic skills are taught at the lower level is of interest to the study.

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*Other evaluations of Head Start and Follow Through have also used a pooled Non-Follow Through comparison (Smith, 1973; Stearns, 1973; and Stallings, 1973).

**See Appendix A for a listing of sites by sponsor and code.

Table 3

STATISTICS OF DEMOGRAPHIC AND BASELINE TEST FOR FOLLOW THROUGH SITES AND POOLED NON-FOLLOW THROUGH FIRST GRADE

First Grade	Number of Classes	Class Size		Average Age (months)		Average Months in FT as of F72		Percent Preschool		Percent Black		Percent 1st Lang Not Eng		Baseline WRAT--Fall '71			Yrs. Imp.
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Percent Children	
FAR WEST LAB. Total		21.40	2.91	81.43	1.89	7.79	2.47	46.02*	22.14*	21.53	24.15	2.43	7.60				
0201 Berkeley	4	24.00	1.41	78.76	.70	11.67	1.92	N.A.	N.A.	53.16	13.78	0.00	0.00				5
0204 Duluth	4	22.00	2.45	82.53	1.00	7.73	.83	52.04	4.97	2.17	4.35	0.00	0.00	33.36	2.11	72.83	5
0207 Lebanon	4	22.25	1.56	83.53	.99	6.29	1.70	19.81	11.06	0.00	0.00	0.00	0.00				5
0209 Salt Lake City	4	20.25	3.77	80.61	.70	6.15	1.23	68.19	19.32	15.65	17.26	12.14	14.45	31.85	2.86	52.75	5
0213 Tacoma	4	18.50	2.38	81.72	1.26	7.10	1.64	64.03	22.98	36.64	19.59	0.00	0.00	32.80	4.09	53.15	4
U OF ARIZONA Total		23.52	3.54	80.42	1.92	4.86	3.82	49.86	26.73	47.65	38.48	7.73	20.80				
0305 Des Moines	4	18.50	3.11	82.16	1.38	7.03	.52	38.76	25.26	52.75	23.74	0.00	0.00	31.98	3.25	44.30	5
0307 Fort Worth**	4	23.25	1.71	82.45	.37	.29	.36	80.26	7.10	73.96	49.34	23.00	46.00				5
0308 LaFayette**	3	26.00	3.00	80.87	1.45	.24	.21	51.73	8.26	25.35	15.75	0.00	0.00				5
0309 Lakewood	4	25.25	1.89	78.53	.99	2.86	.44	25.94	5.15	24.30	9.83	17.77	19.10	24.97	2.38	28.71	5
0311 Newark	4	27.00	1.83	78.43	1.03	9.96	.74	73.04	32.42	96.38	2.83	2.62	3.31	28.09	2.33	81.08	5
0316 Lincoln	4	21.75	1.50	80.21	1.33	7.63	.25	29.92	4.61	7.61	10.27	1.09	2.17	32.62	6.16	72.73	4
BANK STREET Total		24.63	4.57	78.96	1.48	6.83	3.65	43.53	23.67	59.02	47.98	7.05	16.72				
0502 Brattleboro	3	17.67	1.53	78.51	.87	7.88	1.19	26.83	10.43	0.00	0.00	0.00	0.00	27.35	5.14	70.91	5
0504 Fall River	4	21.25	.96	80.19	.51	9.47	1.44	36.07	28.25	0.00	0.00	33.50	22.29	24.43	1.17	65.12	5
0506 NYC, P.S. 243K	4	29.25	1.24	77.67	.70	8.37	.85	46.43	2.92	100.00	0.00	0.00	0.00	32.50	2.96	67.22	5
0508 Philadelphia II	4	28.00	3.37	77.64	.63	8.07	2.94	30.02	21.75	99.04	1.92	0.00	0.00	27.95	8.83	46.96	5
0510 Tuskegee**	4	25.25	1.50	80.69	.88	.62	.82	74.13	12.40	81.33	25.42	0.00	0.00				5
U OF OREGON Total		24.31	3.51	79.19	.94	9.56	2.54	66.00	30.60	83.92	18.24	2.20	4.68				
0703 E. St. Louis	4	27.25	2.87	78.93	.60	12.00	0.00	47.02	23.69	98.15	3.70	0.00	0.00				5
0707 NYC, P.S. 137K	3	27.67	2.31	78.40	.35	6.59	5.19	42.63	33.46	97.70	3.98	2.30	3.98	29.04	13.30	45.46	5
0708 Racine	4	24.25	3.30	79.72	.82	9.95	.30	74.50	18.91	67.73	20.53	8.76	6.66				5
0711 Tupelo**	4	22.50	1.91	79.69	1.55	8.23	.74	62.56	38.58	81.54	12.31	0.00	0.00				5
0719 Providence	4	20.75	1.89	79.03	.61	10.32	.60	97.47	2.94	77.96	23.14	0.00	0.00	26.37	4.95	71.43	4
U OF KANSAS Total		30.05	4.19	79.05	2.17	7.53	.73	46.39	18.96	78.27	30.19	4.31	11.77				
0801 NYC, P.S. 77X	2	30.50	.71	77.19	1.00	7.55	.64	64.09	13.08	44.30	3.35	35.97	6.44	36.82	.02	53.23	5
0803 Philadelphia VI	4	34.00	1.63	77.09	.33	8.27	.42	25.56	16.09	99.31	1.39	0.00	0.00	27.63	3.50	42.07	5
0804 Portageville	4	25.75	.96	82.10	.74	7.82	.49	52.87	5.01	33.87	8.57	0.00	0.00	31.83	2.35	67.27	5
0806 Kansas City	4	32.75	2.06	80.23	.65	6.94	.53	42.08	19.57	97.84	2.74	1.43	2.86	27.04	1.24	68.42	4
0807 Louisville	4	27.50	5.26	77.74	1.16	7.09	.82	56.20	17.80	99.07	1.85	0.00	0.00	22.80	2.23	69.83	4
HIGH SCOPE Total		24.33	5.13	79.68	1.85	4.59	3.37	60.33	30.34	58.72	39.70	6.74	10.49				
0901 Greenwood**	4	25.25	7.86	78.41	.96	0.00	0.00	38.60	43.90	82.58	29.41	.89	1.79				5
0902 Ft. Walton Beach	4	19.00	.82	78.65	.95	8.78	.44	90.00	20.00	78.01	12.68	1.32	2.63	18.44	1.55	58.03	5
0903 NYC, P.S. 92M	3	25.00	1.00	78.00	1.07	7.38	.25	48.27	25.71	100.00	0.00	0.00	0.00	33.47	4.81	61.33	5
0906 Greeley	3	30.00	4.00	81.90	1.02	3.11	.84	55.73	6.86	0.00	0.00	25.32	12.97	30.55	4.70	42.57	3
0907 Denver	4	24.00	2.14	81.60	.26	4.05	1.45	64.89	20.52	28.65	17.13	9.15	4.31	25.03	2.22	43.36	3
EDC Total		28.52	6.98	79.84	4.21	7.61	4.74	62.01	17.50	55.79	37.13	2.17	4.91				
1101 Burlington	4	21.75	2.87	82.40	6.65	12.93	3.01	57.79	12.13	2.15	2.51	0.00	0.00	25.37	2.69	63.83	5
1103 Philadelphia IV	4	33.00	1.41	76.99	.29	7.98	1.08	53.42	10.81	90.76	10.88	.78	1.56	31.41	1.36	52.48	5
1106 Paterson	4	25.00	4.69	78.54	.93	9.16	3.26	86.32	8.87	90.42	7.03	7.86	8.58	23.31	3.61	55.14	4
1107 Rosebud**	3	37.33	10.69	79.38	6.95	7.08	3.93	54.76	26.43	27.93	3.42	2.27	3.94				4
1108 Smithfield**	4	27.75	1.24	81.80	1.42	.78	.20	55.99	4.33	60.76	14.77	0.00	0.00				4
NON-FT	35	27.03	4.32	79.89	2.28	.34	1.54	21.35	24.93	48.11	41.35	2.31	5.30	32.07	8.76***		

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* Berkeley was not included in this sponsor computation.

** Sites which have children entering school at the first grade level rather than kindergarten.

*** 29 Non-Follow Through classrooms had baseline test data.

Table 4

STATISTICS OF DEMOGRAPHIC AND BASELINE TEST FOR FOLLOW THROUGH SITES AND POOLED NON-FOLLOW THROUGH THIRD GRADE

Third Grade	Number of Classes	Class Size		Average Age (months)		Average Months in FT as of F72		Percent Preschool		Percent Black		Percent 1st Lang Not Eng		Baseline WRAT--Fall '69			Yrs. Imp.
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Percent Children	
FAR WEST LAB. Total		23.00	3.71	105.89	2.21	17.83	4.70	39.76*	11.93*	22.20	24.72	1.11	1.98				
0201 Berkeley	4	25.50	2.08	102.97	.70	24.39	3.09	N.A.	N.A.	59.83	8.18	0.00	0.00	42.83	3.52	47.62	5
0204 Duluth	4	25.25	2.06	105.63	1.38	18.91	2.11	40.36	6.96	0.00	0.00	0.00	0.00	37.90	2.34	52.83	5
0207 Lebanon	4	21.25	2.75	108.67	1.52	15.05	1.36	29.18	4.12	0.00	0.00	1.25	2.50	42.53	1.98	31.77	5
0209 Salt Lake City	4	24.50	1.29	105.72	.69	13.76	1.82	42.23	17.49	13.45	9.16	3.13	2.09				5
0213 Tacoma	4	18.50	4.51	106.48	1.87	17.06	4.72	47.26	10.39	37.74	9.70	1.19	2.38	35.26	4.63	31.65	4
U OF ARIZONA Total		23.79	3.93	106.04	2.12	16.19	8.03	46.06	26.37	46.15	36.05	2.78	6.57				
0305 Des Moines	4	22.00	1.15	107.70	2.10	10.77	11.21	33.92	15.75	49.43	20.55	0.00	0.00				5
0307 Fort Worth**	4	21.75	1.26	107.45	1.33	13.75	1.17	54.39	8.79	59.18	47.21	7.61	15.22				5
0308 LaFayette**	4	27.50	5.92	105.54	2.09	16.83	1.41	37.77	29.02	20.00	21.04	.78	1.56	36.34	2.45	47.83***	5
0309 Lakewood	4	24.75	3.95	104.64	.91	14.52	9.48	35.94	5.79	42.75	3.65	1.79	3.57	26.24	4.95	32.32	5
0311 Newark	4	25.75	3.77	103.57	1.47	23.33	12.17	91.27	12.70	98.15	3.70	1.85	3.70				5
0316 Lincoln	4	21.00	2.45	107.86	.98	17.94	2.27	23.11	5.21	7.43	8.70	4.67	4.10				4
BANK STREET Total		26.68	7.32	103.84	2.21	21.20	5.49	48.39	27.91	62.02	48.70	10.67	21.98				
0502 Brattleboro	3	15.33	.58	103.02	2.25	21.53	2.45	27.92	15.25	0.00	0.00	0.00	0.00	33.93	9.58	54.35	5
0504 Fall River	4	24.00	4.55	105.82	2.62	15.42	6.86	28.22	26.33	0.00	0.00	47.80	23.46				5
0506 NYC, P.S. 243K	4	26.50	1.00	103.09	.76	24.58	.62	77.96	25.66	99.07	1.85	.93	1.85	39.64	10.70	43.36	5
0508 Philadelphia II	4	36.75	2.75	101.71	1.07	27.07	2.26	41.01	12.82	97.31	3.72	1.97	3.95	30.54	5.57	50.00	5
0510 Tuskegee**	4	28.00	4.08	105.36	1.35	17.48	.52	61.74	23.79	98.22	2.09	0.00	0.00	30.60	4.78	70.44***	5
U OF OREGON Total		23.84	4.92	103.09	3.19	22.01	7.48	60.81	27.06	82.80	18.66	2.43	4.22				
0703 E. St. Louis**	4	25.50	4.36	104.17	.43	24.28	.57	73.08	12.10	100.00	0.00	0.00	0.00	47.20	8.75	69.23***	5
0707 NYC, P.S. 137K	3	31.00	1.00	102.51	.32	9.49	3.06	33.91	27.66	94.59	1.99	3.30	3.33	33.43	5.50	32.65	5
0708 Racine	4	23.00	5.48	104.77	.93	29.47	2.06	70.72	13.76	56.27	15.78	9.08	4.01	33.48	6.40	73.91	5
0711 Tupelo**	4	18.75	1.26	104.72	2.26	16.82	2.67	41.64	31.98	82.23	13.18	0.00	0.00	24.55	8.51	48.00***	5
0719 Providence	4	22.75	1.59	99.15	5.02	26.89	3.62	77.99	24.21	83.91	13.84	0.00	0.00				4
U OF KANSAS Total		30.47	4.20	103.48	2.33	20.63	3.47	36.64	23.47	80.25	31.18	3.64	9.40				
0801 NYC, P.S. 77X	2	30.00	1.41	101.88	.76	20.50	7.10	53.73	16.67	43.38	2.05	28.42	3.70	40.49	.25	38.46	5
0803 Philadelphia VI	4	36.25	3.77	101.14	.39	18.06	3.53	34.81	16.53	98.72	1.48	1.28	1.48	28.69	4.86	42.00	5
0804 Portageville	3	29.00	0.00	106.39	.88	24.18	1.15	27.59	5.97	27.59	3.45	0.00	0.00	43.29	2.34	55.56	5
0806 Kansas City	4	30.00	1.15	105.39	1.56	18.66	.89	9.16	9.54	100.00	0.00	0.00	0.00	34.37	2.45	39.02	4
0807 Louisville	4	26.50	3.11	102.55	1.49	22.60	1.28	64.21	12.47	100.00	0.00	0.00	0.00	31.92	1.93	69.09	4
HIGH SCOPE Total		27.26	4.14	104.21	2.53	16.71	6.30	36.49	26.86	62.00	39.61	6.74	10.15				
0901 Greenwood**	4	25.50	2.08	102.52	1.17	16.33	3.22	19.45	14.77	87.04	23.32	0.00	0.00	28.62	2.66	47.62***	5
0902 Ft.Walton Bea.**	4	21.50	1.29	103.39	1.84	20.11	2.85	25.00	50.00	82.68	2.80	0.00	0.00				5
0903 NYC, P.S. 92M	4	32.00	.82	102.14	.74	24.63	2.03	40.49	17.01	96.85	2.55	3.18	3.67	41.84	5.18	41.41	5
0906 Greeley	3	28.33	1.15	107.01	1.45	7.88	2.78	51.60	7.09	0.00	0.00	27.20	6.33	41.74	3.25	17.98	3
0907 Denver	4	29.25	3.30	106.73	2.27	12.43	3.01	49.71	15.41	28.15	21.67	5.68	4.24				3
EDC Total		26.17	6.72	102.08	2.32	24.40	4.24	52.92	24.37	57.42	41.18	1.08	2.79				
1101 Burlington	4	22.75	2.22	101.12	4.23	25.23	2.55	41.21	31.39	2.27	4.55	0.00	0.00	26.09	8.18	34.78	5
1103 Philadelphia	4	27.75	3.30	102.70	1.24	22.91	2.00	31.11	7.82	96.40	5.05	.93	1.85	25.40	3.32	30.51	5
1106 Paterson	4	22.00	2.58	102.28	1.24	29.84	1.74	70.08	11.19	96.53	4.53	0.00	0.00				4
1107 Rosebud**	3	34.67	12.42	100.78	1.14	22.93	.80	79.29	8.86	28.41	3.00	4.93	5.41				4
1108 Smithfield**	2	25.50	2.12	104.34	.66	17.02	.74	46.15	5.44	55.09	4.58	0.00	0.00	33.36	2.95	79.25***	4
NON-FT	36	27.50	4.65	105.06	2.74	.84	2.27	8.55	10.30	49.60	40.85	3.74	11.37	35.88 39.13	8.43+ 10.26#		

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*Berkeley was not included in this sponsor computation.

**Sites which have children entering school at the first grade level rather than kindergarten.

***F70 WRAT used for baseline because they are entering first grade sites.

+Mean and Standard Deviation for F69 Baseline WRAT for those third grade Non-Follow Through children who entered school in kindergarten. (N=18)

#Mean and Standard Deviation for F70 Baseline WRAT for those third grade Non-Follow Through children who entered school in first grade. (N-6)

- Since the third grade classes were terminating Follow Through and were being tested, and since the primary concern of the total Follow Through evaluation was to determine the program's effect on these children, clearly the third grade classes should be observed.

The decision to observe four children per classroom was made at a time when we were planning to relate classroom process to outcome scores, using the child as the unit of analysis and using child focus data. For such an analysis, the decision was made to use four children per classroom and obtain five Five-Minute Observations (FMO's) per child in an effort to obtain a more stable estimate of each child's behavior. This approach was subsequently dropped in favor of using the classroom as the unit of analysis.

The selected COI sample allowed for maximum overlap with the Spring 1973 pupil test sample. Such an overlap was essential in order to examine the relationship of classroom process and pupil outcome. Thus, students in 34 of the 36 observation sample sites were tested. The two exceptions were Fort Worth, Texas, and LaFayette, Georgia, both of which were University of Arizona sponsored sites. These two sites were chosen in order to provide continuity with observations conducted in earlier years; to provide better geographic balance in the observation sample; and to provide part of the statistical base for examining the question of exportability of the University of Arizona model.

b. Criteria for Identifying Classrooms and Children

The primary consideration in identifying the classrooms and the children to be observed was the availability of baseline data. The baseline data consisted of test and/or parent interview data collected on children in the fall at the entering grade level. In those cases where parent interview data were not available, test data alone were accepted as meeting the baseline data criteria.

Baseline test data were not, however, available in every project for children in both the first and third grade classrooms. As shown in Table 1, while there were baseline data for 25 first grades and 25 third grades, there was overlap in only 16 of the 36 projects. The percent of children at each site with baseline data appears in the second to last column on Tables 3 and 4. In projects where baseline WRAT data are available, the percentage of children for whom WRAT scores are available is an approximate indicator of the proportion of children within the observed classrooms who had been enrolled in Follow Through since their entry into school as kindergartners or entering-first graders. As may be seen by comparing Tables 3 and 4, the proportion of such children was generally greater in the first grade.

In those projects where baseline data were not available for a specific grade level, the Follow Through classrooms were nominated by the sponsor and the Non-Follow Through classrooms were selected by the SRI Field Operations staff. The children selected for individual child observations in those classrooms were chosen on a random basis from classroom roster lists by SRI staff.

1) Classroom and Activity/Adult Selection--In the selection of classrooms, the ideal situation was one in which baseline data were available for all the children. However, as it has a way of doing, reality interfered: there were classrooms that met the ideal and some that fell short. In order to have a sufficient number of classrooms in the study sample for each site, some adjustments were necessary. For both Follow Through and Non-Follow Through classrooms in which there were baseline data on the children, selection was made as follows:

- First priority was given to classrooms having the largest number of children for whom both parent interview and test data were available at entering grade level.
- Second priority was given to classrooms having the largest number of children for whom test data were available.

For those Follow Through and Non-Follow Through classrooms lacking baseline data, selection was made as follows:

- The Follow Through classes were chosen by the sponsors.
- The local Follow Through Director nominated comparison classrooms at each grade level consisting of children of comparable socio-economic background as Follow Through children. The most comparable classroom was selected by SRI's Field Operations staff for observation and another classroom served as an alternate.

The selection of a classroom automatically "selects" its teacher, aide, and/or volunteer to be observed while she is engaged in specified classroom activities during the two observation days.*

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*See page 37 for more detailed explanation of the adult/activity observation.

2) Selection of Children--In order to provide the necessary sample of four children to be observed, a sample of eight children per classroom was drawn at SRI. The larger sample ensured that four children would be present in the event that illness or other factors caused a child or children to be absent on the observation day. The criteria for selecting the eight children were as follows:

- Priority 1 children were those for whom there was a complete baseline data history.*
- Priority 2 children were those for whom there was a partial baseline data history.
- Priority 3 children were those with no data history but who had been in Follow Through for the longest period of time.
- Priority 4 children were randomly selected children who met none of the above criteria.

In classrooms where baseline data were available, within the Priority 1 category the eight children selected were assigned a position of 1 to 8 on a random basis--then the same procedure was used in Priority 2, 3, and 4 to complete the list of eight children. Of course Priorities 2, 3, or 4 were used only in those cases where there were not enough children in the preceding categories to complete the list of eight children.

In classrooms where baseline data were not available, the eight children were selected randomly from the classroom roster or class list** and listed in the order in which they were selected. The final ordering of children was made alternately by sex; i.e., if the first child selected was a girl, the next would be a boy, then a girl, until there were eight children on an "Individual Child List." However, children with the most complete data histories were the first priority, and a child would be chosen on the basis of the data history rather than sex. The child identification (I.D.) numbers, as listed on the Individual Child List, also are used to identify the children on the classroom rosters and in the data bank.

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*Tables 3 and 4 present the percent of children at each site who have baseline test data.

**A class list consists of updated roster information collected in Fall 1972 on all Follow Through children. The classroom roster provides a demographic description of the classroom and serves as a control for subsequent testing and data processing activities. Classrooms which were not rostered in Fall 1972 were rostered in January 1973.

2. Demographic and Entering Characteristics

In order to evaluate the effect of a classroom process or a program, it is necessary to examine the uniformity of classroom procedures* and also to take account of differences in the characteristics of the site and of the children in the sample. Inevitably there are gross differences in child and site characteristics since each sponsor has attempted to implement his educational model in several regions of the country and in diverse communities.

The Follow Through program is designed to meet the needs of children from low-income families. A principal objective of the program is to sustain and supplement in the early grades the gains made by children who have had a full year's experience in a Head Start or comparable preschool program.** These criteria generally determine which children participate in the Follow Through program in a particular site. Note, however, that within individual sites, and across sites nationally, the Follow Through child sample is not controlled. As a result inter-site differences exist in basic child characteristics such as entering ability, preschool experience and language spoken in the home. Such differences also exist between Follow Through sample groups and groups of Non-Follow Through comparison children.

In order to measure the extent and type of differences in entering characteristics, comparability assessments were made of (1) all Follow Through sites, and (2) pooled Non-Follow Through classrooms. Most of the selected demographic and entering characteristics are derived from data found on the Classroom Rosters which describe the 271 Follow Through classrooms and the 71 Non-Follow Through classrooms in the observation sample.*** The data were collected in Fall 1972, and represent classroom and child characteristics. Means and standard deviations based on data from the four classrooms for each grade were computed for each site. The classroom was the unit of analysis. Tables 3 and 4 present the summary statistics of first and third grades for the size of class, average age, months in Follow Through as of Fall 1972, percent with preschool experience, percent of black students, percent of students with

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*Uniformity of the data collected is studied in Chapter IV.

**Follow Through Program Guidelines, dated February 24, 1969 (draft) require that at least half of the children in each Follow Through project must be graduates of a full-year Head Start or comparable preschool program.

***The information for one Non-Follow Through classroom in the sample was lost in the mail.

English as a second language, baseline Wide Range Achievement Test (WRAT)* scores, percent with Baseline WRAT, and number of years the site has been sponsored.** A description of the findings regarding demographic characteristics of sites and children follows.

a. Class Size

The means for the number of children in a classroom range from 15 at Brattleboro (0502) to 37 at Rosebud (1107). The Non-Follow Through mean falls at 27. Rosebud also has a large standard deviation, indicating that class sizes vary considerably (some classes may have been combined). This same site also has a large standard deviation for the age of the children, suggesting that there may be more than one grade level in a classroom at Rosebud (the rostering data indicates that this is an ungraded classroom). The relation of class size and implementation will be discussed in Chapter V. The relation of class size and process variables will be discussed in Chapter VII.

b. Average Months in Follow Through

The data presented on Tables 3 and 4 regarding the months in Follow Through must be interpreted with caution. These data represent the numbers of months of Follow Through experience prior to the start of the 1972/73 school year. Thus, in sites that did not have kindergartens, e.g., Fort Worth, LaFayette, Tuskegee, Smithfield, a mean Follow Through experience of zero is possible. A mean larger than zero is also possible because of the retention of children in grade from the prior school year.

In third grade, the variation in the number of months in Follow Through will be due to several sources: as in first grade, children in sites that do not have kindergartens will have fewer months in Follow Through; children in sites where kindergarten is the entering grade and that have been sponsored for fewer than four years (e.g., Denver) will also have fewer months in Follow Through; and, of course, communities with a more transient population will have children with fewer months in Follow Through (e.g., Greeley).

Note that the mean Follow Through experience shown for the pool of comparison children is greater than zero. The non-zero mean reflects the Follow Through experience of children previously enrolled in Follow Through who had left the program and were found within the Non-Follow Through classrooms that were observed in Spring 1973.

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*The scores for the WRAT were taken from the fall of the children's entering year in school.

**The earliest that a site could have been sponsored was in Fall 1968.

c. Percent with Preschool Experience

The percentage of children with preschool experience ranges from a low mean of 19.45% at Greenwood (0901) in third grade to a high mean of 97.47% at Providence (0719) in first grade. Few third grade children in Non-Follow Through have had preschool experience ($\bar{X} = 8.55$) but, as the standard deviation of 10.30 indicates, this varies widely from classroom to classroom. However, an analysis presented in Appendix B, indicates that Follow Through classroom processes were not affected by these differences and Non-Follow Through classrooms were only slightly affected.

d. Percent of Black Students

The percent of third grade black students at a site ranges from zero in Duluth (0204), Lebanon (0207), Brattleboro (0502), Fall River (0504), and Greeley (0906) to 100% in East St. Louis (0703), Kansas City (0806), and Louisville (0807). (This wide inter-site range exists also at the first grade.) Overall, University of Oregon and University of Kansas have a larger percent of black students and Far West has fewer black students in the observation sample than do other sponsors. While Non-Follow Through has an average of nearly 50% black students in both first and third grades, the standard deviations indicate a wide range in classroom means. A review of the data shows that some classrooms in Non-Follow Through have no black children while other classrooms have only black children. Thus the range for Follow Through and Non-Follow Through classrooms is similar. An analysis of whether teachers and aides differ in their responses to all-white first-grade classes, mixed (20%-80% black) first grade classes, and all-black first-grade classes is presented in Appendix B. This analysis suggests that adults in Follow Through classrooms with more than 80% black children offer more praise, reinforcement, and neutral corrective feedback for academic achievement than do adults in classrooms with different racial compositions.

e. Percent with First Language not English

There are twenty-four sites where English is not spoken as a first language by some of the children. The standard deviations at these sites are nearly as large as the mean in most cases, suggesting that some classrooms at a site probably have most of the children who use English as a second language while other classrooms at the same site have no such children. Fall River (0504) has the highest mean with nearly 50% in the third grade speaking a first language other than English. Again the standard deviation is high, indicating that some classrooms have more bilingual children than other classrooms.

Non-Follow Through has a very small representation of children who speak English as a second language (the mean is 2.31 for first grade). However, the standard deviation is over twice as large as the mean. In fact, demographic data show that the Non-Follow Through classrooms range from a minimum of no children speaking another language to a classroom where 59% do so.

f. Baseline WRAT Scores

As can be seen on Tables 3 and 4, the range of entering skills in reading and arithmetic as measured by the WRAT varies widely from site to site.* The range of site means is 18.38 points in the first grade and 22.65 points in the third grade. In some cases such as New York City (0707), the standard deviation between classrooms in first grade is large, suggesting that children may be grouped according to test scores. The mean for Non-Follow Through at first grade is higher than 19 of the 25 Follow Through sites where baseline data were available. At third grade the mean for the pooled Non-Follow Through classes which had entering kindergarten is higher than the mean of 11 of the 19 corresponding Follow Through sites. The mean of the third grade pooled Non-Follow Through classes which had entering first grade is higher than 5 of the 6 corresponding Follow Through site means. See Table 1 for entering grade level identification for Follow Through sites. In both cases the standard deviations suggest a wide distribution of classroom scores in the pooled Non-Follow Through sample. The observed effect of baseline WRAT scores upon classroom process in the first grade is discussed in Appendix B.

g. Full Follow Through Experience

The percentage of children for whom baseline WRAT test scores are available is an approximate indicator of the proportion of children within the observed classrooms who had been enrolled in Follow Through since their entry into school as kindergartners or entering-first graders. As Tables 3 and 4 indicate, the percent of children with baseline data for first grade varies from a high of 81% in Newark to a low of 29% in Lakewood. In the third grade the range varies from a high of 79% in Smithfield to a low of 18% in Greeley. The effect of this factor will be discussed in Chapter V.

h. Number of Years of Site Sponsorship

Twenty-six sites have been sponsored by the current sponsor for five years, eight for four years, and two for three years. Those with five years of sponsorship are likely to be the best implemented since the sponsor has had a longer period to affect teaching practices. On the other hand, sponsors may have developed more efficient training procedures over time, and the new sites might be better implemented. As part of the analysis, in Chapter V site implementation scores will be discussed with consideration of length of time of sponsorship.

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*The site mean score is a mean of classroom means.

i. Summary

Clearly there are great differences among site demographic characteristics. The effects of these differences will be informally examined in relationship to implementation scores in Chapter V. The correlations between the process variables, which describe control systems and classroom affect, and basic site or child characteristics are presented in Appendix B. The correlations were computed for each sponsor as well as pooled Follow Through and pooled Non-Follow Through. Essentially, demographic characteristics had little effect upon classroom processes except in Follow Through classrooms which had 80% or more black children. In these classrooms the children received more praise and reinforcement for academic achievement, and the adults showed less positive or negative affect toward the children.

B. The Instrument

The Follow Through Classroom Observation Instrument and procedures provide a systematic way for observation data to be reliably recorded as a basis for assessing: (1) the extent of implementation of the sponsors' models, as reflected in part by observed teacher behavior; (2) the relative exportability of the Spring 1973 study models; and (3) the relationship of classroom process and child outcome or child behavior.

The Classroom Observation Instrument is structured to provide a description of activities and interactions in a Follow Through classroom. Through use of prescribed codes, it yields a record of classroom activities, the classroom environment, the interactions between the teacher and/or aides and the children, and interactions among the children. This observation instrument was developed specifically in order to focus on and record the instructional methods, interpersonal interactions, and classroom atmosphere in ways necessary to reflect the variety of sponsor models.

The COI contains three major sections:*

- The Classroom Summary Information (CSI) section.

- The Physical Environment Information (PEI) section.

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*See Appendix C for this instrument.

- The Classroom Observation Procedure (COP), which consists of three parts: the Classroom Check List (CCL), Five-Minute Observation Preamble (PRE), and Five-Minute Observation (FMO).

In a single observation day, the CSI and the PEI are completed once and the COP (which includes the CCL, the PRE and the FMO) is completed four times an hour.

1. Classroom Summary Information (CSI)

The Classroom Summary Information section is designed to allow for the coding of the number of children enrolled and the number present on the observation day; (2) the number of teachers and aides assigned to the classroom; and (3) the number of volunteers or visitors present on the observation day. Also recorded in this section is the length of the school day.

2. Physical Environment Information (PEI)

The Physical Environment Information section provides space for coding information about the classroom setting, which includes the presence and use of specific equipment, instructional materials, games, toys, and displays in the classroom. The observer also records whether the classroom has movable tables and chairs and/or stationary desks in rows, whether seating is assigned during part of the day and/or self-selected, and whether children are assigned to groups by the teacher or aide and/or select their own work groups.

3. Classroom Observation Procedure (COP)

The COP consists of three sections of codes that describe the classroom structure and process:

- Classroom Check List (CCL)
- Five-Minute Observation Preamble (PRE)
- Five-Minute Observation (FMO)

The classroom observer completes the entire COP--the CCL, the PRE, and the FMO--approximately four times an hour or 16 to 20 complete COPs over a 4-5 hour observation day.*

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*The number of observations cannot be fixed because some hours are interrupted by recesses or other out-of-classroom events.

a. Classroom Check List (CCL)

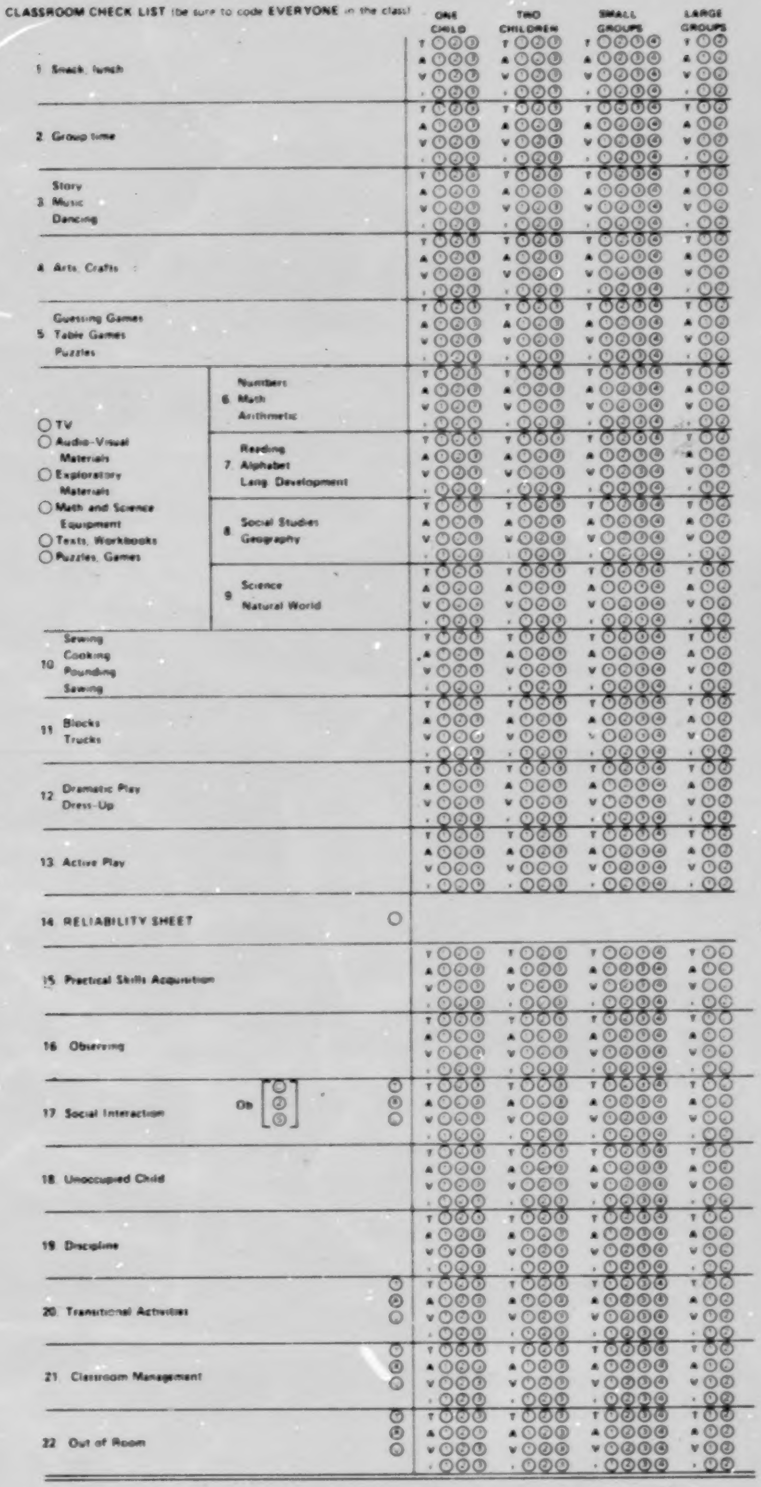
As noted above, the Classroom Check List (CCL) is completed approximately four times an hour. The CCL is referred to as a "snapshot" of the classroom because it allows for coding relatively stable "pictures," at a given point in time, of the activities engaged in and the distribution of the adults and children in the classroom. A record is made of activities occurring, of child and adult grouping patterns, of adult roles, of child involvement, and of the materials used in the academic activities (see Figure 1). For example, several activities may be taking place simultaneously in the classroom: a small group of children may be doing crafts under the guidance of a teacher aide, the teacher may be instructing a large group (over 8 children) in reading, three children may be working independently on a science project, and four children may be using trucks and blocks in independent play. In this case, all of these activities and the individuals involved in each would be recorded on the CCL.

b. The Five-Minute Observation Preamble (PRE)

The FMO preamble is designed to record information about the activity that the preselected focus person--whether child or adult--is actually engaged in (see Figure 2). This is done four times an hour. The observer focuses on the selected person just before the five consecutive minutes of observation begins and records: whether the focus person is an adult or child and his/her identification number; the CCL code number for the activity engaged in; the role of the adult--that is, whether the teacher, aide, or volunteer is observing, participating, or directing the activity, or not involved; the number of children involved; whether the activity in progress is a continuation of the previously observed activity (i.e., the preceding FMO); and the time the FMO was started. If, during the 5-minute observation period, there is a change in the activity in which the focus person is engaged, the observer records the activity actually taking place at the end of the time period in the designated space at the end of the FMO.

c. The Five-Minute Observation (FMO)

The last part of the COP, the Five-Minute Observation (FMO), is coded four times an hour immediately after the Preamble and is used to record interactions among people in the classroom. One person, the preselected focus adult or child, is followed throughout the 5-minute observation period and the activities and interactions of which he/she is a part, and only these, are recorded.



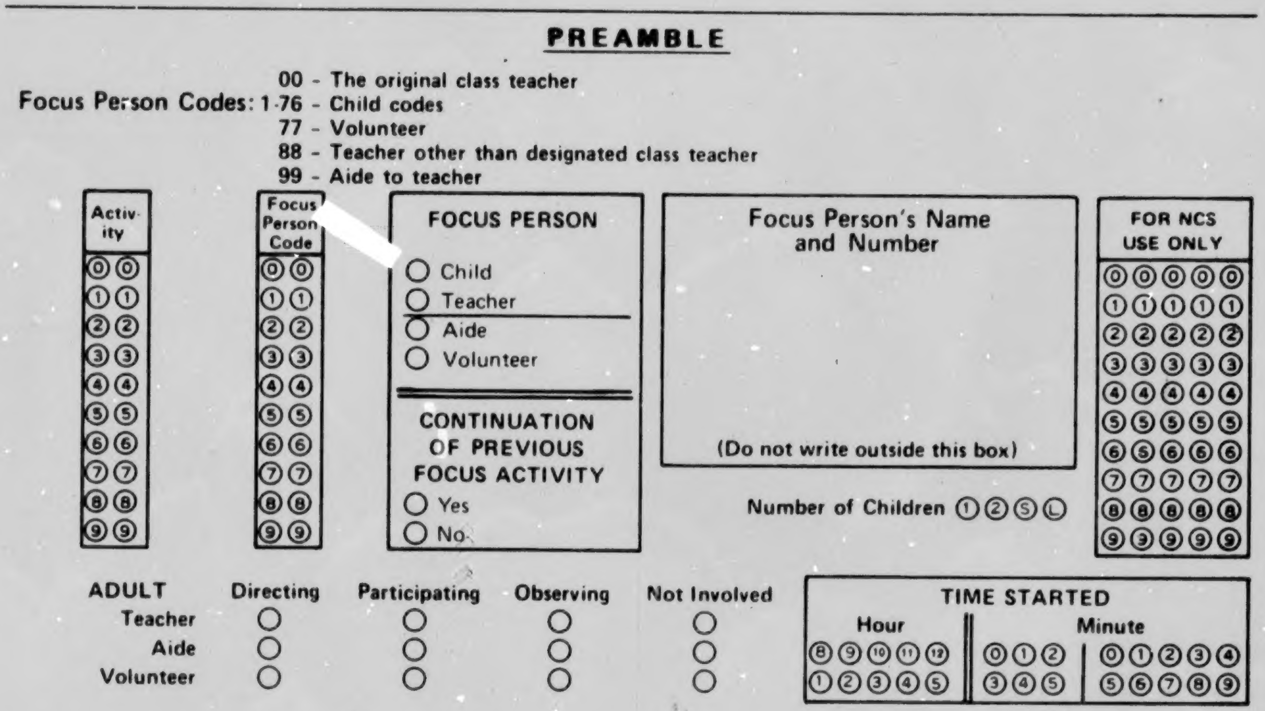
CLASSROOM CHECK LIST (be sure to code **EVERYONE** in the class)

	ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
1 Snack, lunch	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
2 Group time	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
Story 3 Music Dancing	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
4 Arts, Crafts	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
Guessing Games 5 Table Games Puzzles	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
Numbers 6 Math Arithmetic	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
Reading 7. Alphabet Lang. Development	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
8 Social Studies Geography	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
9 Science Natural World	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
Sewing 10 Cooking Pounding Sawing	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
11 Blocks Trucks	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
12 Dramatic Play Dress-Up	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
13 Active Play	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
14 RELIABILITY SHEET ○				
15 Practical Skills Acquisition	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
16 Observing	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
17 Social Interaction Ob [①②③] ○○○	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
18 Unoccupied Child	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
19 Discipline	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
20 Transitional Activities ○○○	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
21 Classroom Management ○○○	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②
22 Out of Room ○○○	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③ ▲ ①②③ ▼ ①②③ , ①②③	T ①②③④ ▲ ①②③④ ▼ ①②③④ , ①②③④	T ①② ▲ ①② ▼ ①② , ①②

○ TV
○ Audio-Visual Materials
○ Exploratory Materials
○ Math and Science Equipment
○ Texts, Workbooks
○ Puzzles, Games

NUMBER OF ADULTS IN CLASSROOM ⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

FIGURE 1 CLASSROOM CHECK LIST



PREAMBLE

Focus Person Codes:
00 - The original class teacher
1-76 - Child codes
77 - Volunteer
88 - Teacher other than designated class teacher
99 - Aide to teacher

Activity	Focus Person Code
⓪⓪	⓪⓪
①①	①①
②②	②②
③③	③③
④④	④④
⑤⑤	⑤⑤
⑥⑥	⑥⑥
⑦⑦	⑦⑦
⑧⑧	⑧⑧
⑨⑨	⑨⑨

FOCUS PERSON
○ Child
○ Teacher
○ Aide
○ Volunteer

CONTINUATION OF PREVIOUS FOCUS ACTIVITY
○ Yes
○ No

Focus Person's Name and Number

(Do not write outside this box)

Number of Children ① ② Ⓢ Ⓛ

FOR NCS USE ONLY
⓪⓪⓪⓪⓪
①①①①①
②②②②②
③③③③③
④④④④④
⑤⑤⑤⑤⑤
⑥⑥⑥⑥⑥
⑦⑦⑦⑦⑦
⑧⑧⑧⑧⑧
⑨⑨⑨⑨⑨

ADULT	Directing	Participating	Observing	Not Involved
Teacher	○	○	○	○
Aide	○	○	○	○
Volunteer	○	○	○	○

TIME STARTED

Hour	Minute	
⑧⑨⑩⑪⑫	⓪①②	⓪①②③④
①②③④⑤	③④⑤	⑤⑥⑦⑧⑨

FIGURE 2 PREAMBLE TO THE FIVE-MINUTE OBSERVATION

(i) The Instrument--The FMO consists of 76 frames, with four sections in each frame, specifically for recording four types of categories: "Who does the action?" "To whom is it done?" "What is done?" and "How is it done?" These categories are coded in sequence to form a sentence (subject, verb, object), which represents an interaction. The subsequent frame is used to code a response (if any) or, in the case of a one-way communication (such as a teacher lecturing or a child manipulating materials), continues to describe the primary action. Since several of the educational models being evaluated encourage the mobility of children and adults, it was necessary to devise components in the instrument to record movement. Nonverbal behavior and child-to-child interaction are also considered important components to be observed.

The FMO observations are structured as a language, with the codes forming intelligible sentences. The Who and To whom codes are used to designate the participants in an interaction. These codes make it possible to designate the person or group of persons initiating or receiving an action. The letter T is used to designate the teacher as the initiator (Who) or receiver (To whom), and M refers to such machines as typewriters, tape recorders, and filmstrip viewers. The same applies to the use of C for child, S for small group, and so on.

The What codes are used to designate the kinds of interaction--such as questions or statements--that have occurred between the participants. The How column codes are modifiers. They supply additional information about the initiator in the Who column or the interaction that was coded in the What column; for example, they indicate positive or negative effect, subject content, control systems, and use of objects.

Examples of coded frames are shown in Figure 3. They demonstrate how the Who, To whom, What, and How codes can be strung together to form interaction sentences.

(ii) The Language--The significant features of the FMO language are that the categories are carefully defined to include elements of educationally significant events; the language of the categories has a predefined syntax; and the collection of data (code sentences) in sequence enables strings of sentences to be formed.

The Vocabulary--The vocabulary of the FMO language identifies events and participants in the classroom. The first two categories of the vocabulary designate the classroom roles of the people involved:*

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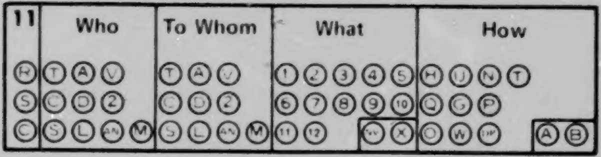
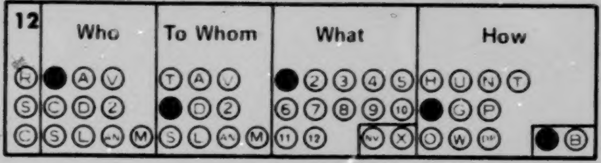
*Operational definitions may be found in Appendix D.



A complete interaction sequence will take two or more frames showing at least the initiation of an interaction and the response to that initial interaction. An example of an interaction sequence is shown below.

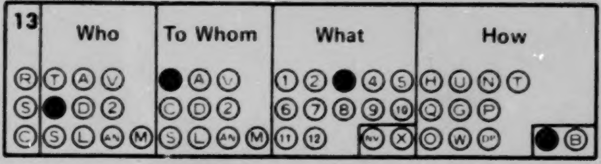
Teacher: "Johnny, what is two and two?"

The teacher (T in the Who column) is initiating an interaction with a child (C in the To whom column) by asking a simple question (1Q in the What and How columns). (A more detailed explanation of the codes appears in Appendix D.) This is coded in shorthand as TC1QA. It is coded in the frame as shown below.



Johnny: "It is four."

Johnny (C in the Who column) responds (3A in the What and How column) to the teacher (T in the To whom column). This in shorthand is CT3A. It is coded in the frame as shown below.



Teacher: "That is correct, Johnny."

The teacher (T in the Who column) tells Johnny (C in the To whom column) that she acknowledges (7A in the What and How column) his correct response. This in shorthand is TC7A. It is coded in the frame as shown below.

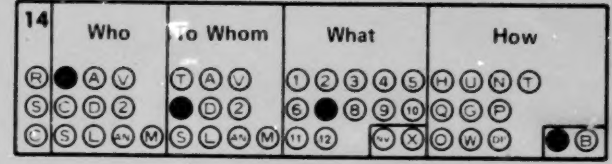


FIGURE 3 CODED FMO FRAMES SHOWING CODING OF A TYPICAL INTERACTION

Subject and Object (Who and To whom) Categories	Code Vocabulary
Teacher	T
Aide	A
Volunteer	V
Child	C
Different child	D
Two children	2
Small group	S
Large group	L
Animal	An
Machine	M

The third category of the vocabulary names the events:

Verb (What) Category	Code Vocabulary
Command or Request	1
Direct Question	1Q (Q from How column)
Open-Ended Question	2
Response	3
Instruction, Explanation	4
General Comments/General Action	5
Task-Related Comment	6
Acknowledge	7
Praise	8
Corrective Feedback	9
No Response	10
Waiting	11
Observing, Listening	12
Nonverbal	NV
Movement	X

The fourth category of the vocabulary modifies the initiator or the action:

Modifier (How) Category	Code Vocabulary
Happy	H
Unhappy	U
Negative	N
Touch	T
Question	Q
Guide/Reason	G
Punish	P
Object	O
Worth	W
Dramatic Play/Pretend	DP
Academic	A
Behavior	B

These categories of the vocabulary summarize the essence of an occurrence, rather than giving the content or the actual words used. For example, when praise occurs, the COI language simply identifies the occurrence of praise and may differentiate the subject matter by modifiers coded in the same frames. Thus, praise for a response related to academic (or to nonacademic) subject matter can be distinguished from praise for deportment (see Example 1 below).

	Actual Sentence	Coded Sentence
Praise for non-academic subject matter	"What a pretty painting you've done!"	TC8
Praise for deportment	"I'm really proud of you, class, for behaving so well while Mr. Jones was here."	TL8B
Praise for academic subject matter	"You read that section beautifully, Jim."	TC8A

There is also a word in the vocabulary (marked on the FMO frame to the left of the four sections) that specifically indicates that the code sentence is not a part of a sequence of events, but is to be considered as happening at the same time as the immediately preceding sentence: S (Simultaneous). This is used primarily to show inattention of children when the teacher or a machine is instructing.

In addition, there is a symbol to indicate that an entire sentence recurs in the sequence: R (Repeat). Another symbol indicates that a sentence is in error and should be eliminated from the data set: C (Cancel).

The Syntax--The rules for combining the elements of the vocabulary are quite complex. Several general rules are:

- A valid interaction sentence must contain words for Who, To whom, and What.
- The sentence may or may not include vocabulary elements as to How the interaction is performed.
- The sentence may be described as being the same as the preceding sentence using R (Repeat).

Thus a code sentence can be described as a sequence of three or four vocabulary elements coded within a frame. The difficulty lies in training the observer to accept the given operational definition--and only that definition--so that the code stands for a recognizable act. There also are a few code sentences with special instructions for use and with special meanings; e.g., TT5NVX followed by five cancel symbols, which indicates that the teacher (as the focus person) has left the classroom.

C. Selection and Training of Classroom Observers

Since the classroom observers provide the study data, the selection and training of the observers are of critical importance to its success. SRI's Field Operations staff selected the observers from the local communities and an effort was made to choose observers with cultural backgrounds similar to the study population.

1. Selecting Classroom Observers

Two observers for each site were hired by the Field Operations staff. One exception to this was PS 77X in New York City, where only one observer was hired because of the small number of Follow Through classes available for observation. The decision to use two observers per project rather than one was made because:

- The observations had to be completed in less time than was possible for one observer to accomplish alone.
- A second observer could provide backup in the event one observer was unable to complete all of his observations.

In selecting observers, the Field Operations staff sought the following qualities and qualifications:

- Personal ability--The ability to learn rapidly, retain information, and build concepts around given symbols.

- Education--A college degree was considered desirable but not essential. Applicants with training in specific educational approaches were considered, but with caution, because they might not accept a sponsor's approach. Ex-school teachers were scrutinized with care, also because of possible bias.

- Attitude--Observers were expected to have a professional attitude towards the data collection effort, which included objectivity in dealing with the data and the ability to treat all data as confidential.

- Residence--Observers should be from the local Follow Through community and should speak the language of the community. However, applicants who were part of the school system, or related to Follow Through personnel were not eligible to be observers.

- Experience--The observers were required to have had experience in working with children.

2. Training Classroom Observers

An SRI training team consisting of one coordinator and six trainers trained all the observers in a total of three training sessions. Each session lasted seven days. The first two training sessions were held in Palo Alto, California, and the third one in Cambridge, Massachusetts. Trainees from each of the sites were assigned to one of the three training sessions by SRI on the basis of school closing dates and subsequent evaluation activity schedules.

During the planning stages of the data collection effort, several sponsors expressed interest in using the SRI observation instrument to observe classrooms not included in the sample. Some sponsors indicated a desire to modify the SRI instrument to gain information more specific to their model goals. At their request, SRI agreed to train interested representatives of the sponsors at one of the three scheduled training sessions. In addition, SRI offered to assist the sponsors in modifying the instrument for their own purposes.

The training locations, training dates, and project and sponsor participants at each training session were as follows:

Session 1, February 7-14, 1973 (Palo Alto, California)

Observer Trainees from

Tupelo, Miss.
Portageville, Mo.
Kansas City I, Mo.
Greenwood, Miss.
Des Moines, Iowa
Lincoln, Nebr.
Berkeley, Calif.
Duluth, Minn.
Tuskegee, Ala.
Ft. Walton Beach, Fla.
Smithfield, N.C.
Rosebud, Texas

Sponsor Representatives (No.)

University of Kansas (1)
Behavior Analysis Approach

Western Behavioral Sciences Institute (2)
Role-Trade Model

Far West Laboratory for Educational R&D (2)
Responsive Educational Program

Session 2, February 21-28, 1973 (Palo Alto, California)

Observer Trainees from

Greeley, Colo.
Tacoma, Wash.
Salt Lake City, Utah
Denver, Colo.
Grand Rapids, Mich.
Racine, Wis.
Fort Worth, Texas
Lebanon, N.H.
Brattleboro, Vt.
Burlington, Vt.
Louisville, Ky.
LaFayette, Ga.

Sponsor Representatives (No.)

University of Arizona (2)
Tucson Early Education Model

U. California, Riverside (1)
Culturally Democratic Learning Environments

University of Georgia (2)
Mathemagnetic Activities Program

Session 3, March 7-14, 1973 (Boston, Massachusetts)

Observer Trainees from

New York City, P.S. 243K
New York City, P.S. 137K
New York City, P.S. 77X
New York City, P.S. 92M
Philadelphia II, Penn.
Philadelphia VI, Penn.
Philadelphia IV, Penn.
Paterson, N.J.
Newark, N.J.
Fall River, Mass.
Lakewood, N.J.
Providence, R.I.

Sponsor Representatives (No.)

Georgia State University (2)
Parent Supported Application of the Behavior Oriented Prescriptive Teaching Approach

New York City Follow Through Project (2)
Interdependent Learning Model

3. Training Procedures

Approximately ten days before observer trainees arrived at the designated training locations, they were sent a Home Training Kit which was designed to familiarize them with the instrument and the coding procedures. The observer trainees were expected to study the materials, to memorize the codes, to complete the coding exercises, and to be able to pass a simple coding exercise on the first day of the training session.

The training session took place over a 7-day period. The trainees were divided into two teams, with each team supervised by three trainers. Generally, a trainer worked with four trainees. The training coordinator worked with both training teams to ensure comparability and consistency of the training.

At the end of each day of training, the trainers met with the training coordinator to discuss training procedures, the continuity of training, observer trainee progress, and training techniques for the following day. These sessions were particularly important in maintaining continuity between the training teams, and between the training sessions.

The first day of training consisted primarily of an introduction to the National Follow Through Evaluation, the role of classroom observation in the study, and a detailed description of the instrument. The remaining 6 days were devoted to the trainees learning the instrument and the administrative procedures. Initially there was a review and discussion of the code definitions. The trainers then role-played vignettes as practice both in selecting the correct codes and marking the codes correctly on the instrument. Exercises in completing the CSI, PEI, and CCL also were included in the training.

The trainees spent approximately 6 hours over a 3-day period observing in local school classrooms, with a trainer present to provide immediate feedback. Usually, the trainees worked as partners for each classroom observation, and both partners coded the same person simultaneously for some of their FMOs. As a check on reliability, the trainers also coded at least one FMO simultaneously with each of their trainees each day.

Videotapes of classroom activities were also used for coding practice. Although trainees find it much more difficult to code from videotapes than from a live classroom setting, the use of videotapes is an invaluable method for clarification of code definitions and for achieving agreement among observers. When observers disagreed, the tape could be backed up and replayed, until clarification and consensus was reached.

Each day, the trainees coded a timed section of videotape and their protocols were checked against the trainers' precoded protocols. Code disagreements and sequences of interactions were then discussed with individual observers. Homework exercises were assigned each day of the session. The next morning, the trainees formed small groups, corrected their homework, and discussed coding disagreements. Such discussion resulted in a better understanding of the code categories.

On the final day of training the observer trainees were given three criterion tapes to code. Each observer trainee was evaluated on his performance in coding the criterion tapes, and judged as to whether he had satisfactorily completed training. Only observer trainees who satisfactorily completed the training were allowed to serve as classroom observers for SRI. (Chapter IV contains a report of observer reliability.)

D. Data Collection Procedure

1. Pre-Observation Tasks

As in any data collection effort, public relations and planning activities were performed prior to the beginning of data collection. Due to a time limitation between the observer training sessions and the beginning of field observations, the pre-observation public relations and planning duties were performed by the Site Coordinators, SRI's on-site representatives.

Following the completion of training, and before field observations began, the observers met with the Site Coordinator, principals, and teachers to provide additional information on the data collection instrument and procedures and to finalize the observation schedule.

Observers were instructed to begin field observations on the first Monday following the training session which they had attended, or as soon as possible thereafter. The observers were also instructed to conduct practice observations in a classroom outside the sample if more than one week elapsed between the end of training and the beginning of field observations so as to maintain their speed and reliability. The number of required practice days depended on the number of elapsed days beyond one week, and was determined by SRI. In any event, one full day of practice observations was considered minimal.

2. Observation Procedures

Each classroom was observed over three days: the first two days were for activity/adult focused observations and the third day was child-focused. As previously noted, two grade levels were observed per site and two observers (except for P.S. 77X in New York City) were assigned to observe the classes at each site. In order to minimize variability in the collected data within a grade level, one observer was assigned to all of the first grade classes and the other observer was assigned to all of the third grade classes.

Field observations were scheduled to last from three to four weeks. In order to complete the observations in this amount of time observers had to observe 4 or 5 days a week. In the event one of the observers could not complete the observations assigned to him, the other observer was asked to help complete the work.

Observations were to be conducted when the classroom was in its "natural" state and only when the designated classroom teacher was present in the classroom. Up to twenty observations were completed each day over the duration of the class period.

a. Activity/Adult Focused Observations

During the activity/adult focused 5-minute interaction observations, emphasis was given to a designated number of activities in the classroom. Previous analyses showed that, although individual child observations were valuable, a more comprehensive picture of the classroom curricular program could be obtained through adult-focused observations. A decision was made by the evaluators that comparisons between classroom processes as described by sponsors and what was actually observed in the classroom would be more useful if the observations were focused on specific activities such as reading and computation.

In the activity/adult focused 5-minute interaction observations, the observers were instructed to complete a minimum number of observations on specific activities per day, using the adult who was directing or participating in the activity as the focus or using children for the focus if an adult was not in charge:

Math	four observations*
Reading	four observations*
Social Science	two observations (if the activity occurred)
Science	two observations (if the activity occurred).

The remaining observations were to be focused on the adults involved in those other activities (among the first twelve listed on the CCL) that were taking place during the remainder of the class day.

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*Some sponsors do not have formalized reading and math activities, however reading or math may occur during a class in cooking or carpentry. This kind of interaction would be recorded in the How column.

b. Individual Child-Focused Observations

As previously noted, eight children were selected and listed in priority order for possible observation. Beginning at the top of the list, the first four children present in the classroom on the observation day were observed. In order to obtain maximum variation in data per child, the four children were observed five times each on a rotation basis, during the entire class day.*

c. Administrative Tasks

In addition to the actual classroom observations, observers were required to complete some administrative tasks on a daily and weekly basis. Administrative tasks consisted of completing the Weekly Roster Lists and the Classroom Observer Daily Log, editing the observation booklets and forms, and returning the material to SRI.

(i) Weekly Roster List--The Weekly Roster List served two purposes: it provided the observers with a way of checking their work at the end of each week, and it provided SRI with a weekly inventory record of each observer's work. The Weekly Roster List was returned to SRI at the end of each week, along with the observation booklets completed that week (see Appendix E for detailed information collected in the Roster).

(ii) Classroom Observer Daily Log--The Classroom Observer Daily Log was designed to collect information about the materials used in the classroom during the observations. It also served as a daily log of activities in which the observer was involved; a record of events that caused changes in the observation procedure; and a record of the school personnel who were involved in the observed classroom. The Classroom Observer Daily Log was returned to SRI following the completion of field observations (see Appendix E for details of the information obtained in the Log).

(iii) Editing Booklets and Return to SRI--At the end of each day, observers were expected to edit their work and to make entries in the Weekly Roster List. At the end of each week the materials were returned to SRI in self-addressed, prepaid boxes. As the materials arrived at SRI they were edited a second time and prepared for computer processing.

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*The CCL is recorded the same way regardless of who is the focus of the 5-minute interaction observation.

E. Summary

Data were collected from 36 sites representing seven sponsors. The sites range in location from rural areas to large metropolitan areas. All geographical sections of the country are represented in the sample. The sites vary in ethnic composition from no black children in four Follow Through sites to 100% black children in four sites (see Table 3). Fifteen sites have children who speak English as a second language. The children enter school with differing ability: e.g., the highest baseline mean score in first grade was recorded for University of Kansas in New York (36.8), while the lowest first grade baseline mean score was for High/Scope in Ft. Walton Beach, Florida (18.2). The percent of children still enrolled one year after having the baseline test is also of interest. This number, which indicates the stability of the school populations, ranges from 81% still remaining in school in Newark first grades to only 29% remaining in Lakewood first grades. Clearly there are great differences among sites in demographic characteristics and these differences need to be considered when interpreting implementation data.

Two days of adult-focused and one day of child-focused observations were conducted in classrooms which ideally had baseline data for at least 20% of the children. In 28 first grades and 77 third grades, the 20% baseline criterion could not be adhered to. These classrooms were observed but were not included in analyses requiring test data.

The observation instrument used was developed specifically for use in Follow Through classrooms. It records classroom environments, activities, and interactions. Training procedures have been carefully developed to ensure observer reliability. These procedures include specifications for hiring observers as well as criteria for allowing a trainee to observe.

Chapter III

DESCRIPTION OF THE VARIABLES

The variables used in this classroom observation study were formulated not only from the Classroom Observation Instrument (COI), but also from the teacher/aide questionnaires, the test scores, and demographic data. Descriptions of the process by which the data from these sources were converted into variables are presented below under the relevant category headings.

A. Classroom Observation Instrument (COI) Variables

The COI is designed to record classroom arrangements and elements of events considered educationally significant by the sponsors. Since there are over 100,000 possible combinations of codes which could form variables, it was important to formulate only those variables considered to be of relevance to the study of sponsor implementation. This section will describe the processes used to transform codes from each portion of the classroom observation instrument into variables.

The classroom is the unit of analysis for most of the analyses in this study; therefore, each classroom was assigned a value on a given variable based on the sum of the frequency of occurrence of the variable for the observation days. The Physical Environment Information (PEI) and Classroom Check List (CCL) were summed over three days. The Five Minute Observation (FMO) variables differ from the PEI and CCL in that the data collected during adult-focused observation and summed across two days, whereas the child-focused variables are based on one day of individual child-focused observations in each classroom. Appendix F lists all of the COI variables created for this study. Many of the variables are not mutually exclusive. Appendix G provides the specifications for the observation variables used in the analysis. These specifications describe which variables are added to make new variables. The variables are numbered in a continuous series (from 1 through 602) rather than by section of the observation instrument.

1. Classroom Summary Information (CSI)* Variable

Information recorded on CSI during the first day's observation was used to create the variables that identify a classroom by sponsor, site, teacher, grade, observer and the like (Variables 1-9). The variables that describe the numbers of adults and children present, Variables 10-14, were obtained by averaging the sums of the numbers recorded on the protocols during the three observation days. To obtain Variable 15 (Child/Teacher and Aide Ratio), the total number of children present on each observation day was divided by the total number of teachers and aides present. To obtain Variable 16 (Child/Adult Ratio), the total number of children present each day was divided by the total number of teachers, aides, and volunteers present. An average ratio over the three days was then computed for both of these variables. Variable 17 (Total class duration) was computed by averaging the number of class hours recorded for the three days of observations. (Appendix F contains a list of the CSI variables.)

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*See Appendix C for the instrument.

2. Physical Environment Information (PEI)* Variables

The PEI section of the COI, completed once each observation day, collects two kinds of information: (1) seating and work group patterns, and (2) equipment and materials present and used in the classroom.

The definitions for the variables in the first category (Variables 18 to 24) are taken directly from the instrument; e.g., if the item "Movable tables and chairs for seating" is marked on the protocol, the value assigned to Variable 18 is 1; if the item is not marked on the protocol, the value for Variable 18 is 0.

Variables in the second category (Variables 25 to 43) are scored _1_ if the protocol was marked "present," and _zero_ if it was not marked. The variables are also scored _1_ if the protocol was marked "used," and _zero_ if not. Each variable is then assigned the value of the sum of its two scores. (Appendix G contains a detailed specification of how each PEI variable was computed.)

3. Classroom Check List (CCL)** Variables

This year, in addition to computing the CCL variables by frequency of occurrence as we have done in the past three years, a weighting scheme was devised that takes into account the number of children involved in various activities. In the past we reported only that children were involved in a reading activity during a particular percent of the observation period. Since we did not report how many children were involved in reading, one child reading was scored the same as a large group reading. By the weighting procedure, we now can determine approximately how frequently one child, two children, small groups, or large groups were engaged in reading or other specific activities.

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*See Appendix C for the instrument.

**Illustrated on page 26.

The CCL variables have been broken down into Categories A through K, each of which defines a particular area of interest to this study (see Appendix F). Category A comprises the variables that describe the frequency of occurrence of specific activities (e.g., Group time, Math, Dramatic play); Category B comprises variables that denote the frequency of occurrence of the different groupings of adults and children found in each classroom for all activities (e.g., Aide with small group of children, one child without an adult); Categories C through I comprise variables that show the frequency of groupings within particular activities (e.g., Teacher with two children in math activity, Small group without adult in reading activity, Volunteer involved in classroom management); and Category J variables reflect the use of special materials or equipment (e.g., texts or workbooks, audiovisual equipment) within the activities of math, reading, social studies, and science. Category K variables which describe activities and groups are the same as those used in preceding years, and are computed as they were in the past in order to examine longitudinal trends.

The weighting scheme of the CCL variable is described in detail in Appendix G.

4. Preamble (PRE)* Variables

There are three categories of preamble variables, which include: (1) Focus of the FMO--comprised of variables that denote the focus person for the 5-minute observation period and the size of the group with which that person is interacting; (2) Adult Role--the variables that describe whether the teacher and aide are directing, observing, participating, or not involved in the activity in which the focus person is engaged at the beginning of the 5-minute interaction observation; and (3) Activity/General--variables that indicate the activity in which the focus person is engaged at the beginning of the 5-minute observation period, and those FMOs that both begin and end with a math or a reading activity.

A score of 1 is attributed to each occurrence of a PRE variable recorded on the protocol and zero if none is recorded. The variables related to the focus on the FMO and the adult role are expressed as percents of FMOs. The PRE variables are listed in Appendix F and the detailed specifications are found in Appendix C.

5. Five-Minute Observation (FMO)** Variables

The FMO portion of the COI is used to record, in the form of coded sentences, interactions that occur in the classroom. Because the possible permutations of the FMO codes total something over 100,000 sentences, it is necessary to limit the number of variables which are formed to those that seem most appropriate to the sponsors' models and to the analyses planned for this study. The 131 FMO variables selected on this basis are listed in Appendix F, and defined in Appendix G. The same set of FMO variables is used for adult-focused and for child-focused observations, but the variables are numbered differently for each focus (i.e., Variables 341a to 471a are for adult-focused and Variables 472c to 602c are for child-focused observations).

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*Illustrated on page 27.

**Illustrated on page 29.

The FMO variables were selected and named to describe interactions relevant to sponsors' implementation. The variables are defined by appropriate code combinations or sentences. In some cases, the definition of the variable corresponds directly to one or two specific coded sentences (e.g., Variable 380a and 511c, "Child Self-Instruction, Academic, with Objects," is limited to a single child's specific activity and permits only two kinds of code combinations: CC4NVAO and DD4NVAO). Other definitions encompass many possible code combinations; e.g., Variable 341a and 472c (Child to Adult, Verbal) includes all interaction frames that show any child code (C,D,2,S,L) in the Who category; any adult (T,A,V) in the To whom category; any verbal code (1,2,3,4,5,6,7,8,9) in the What category; and any code in the How category (thus yielding a possible 135 different kinds of code combinations or sentences).

Generally, the FMO variables describe child and adult verbal interactions (i.e., questions, responses, instruction, comments, and feedback) and nonverbal interactions (i.e., nonverbal requests, responses, self-instruction, feedback, waiting, and observing/listening). In some cases, these FMO variables are further defined by the How category modifiers (such as academic, social behavior, happy, negative). A few variables are defined by the sequential ordering of certain interaction frames (e.g., "Adult question" followed by "Child response" followed by "Adult feedback"); while other variables are summing variables (e.g., Variable 457a and 588c, "All adult positive corrective feedback" includes or sums the variables that define adult positive corrective feedback for academic, other task-related, and behavioral responses).*

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*More specifically, corrective feedback given to a child when his action or response is not acceptable is defined by modifiers from the How category. The What code (9, "Corrective Feedback") must be modified by "Question" or "Guide" from the How codes to form the variable "Positive Corrective Feedback," or by "Negative" or "Punish" from the How codes to form the variable "Negative Corrective Feedback." When the feedback to the child is that his response is correct or acceptable, "Positive Feedback" is used. "Positive Feedback" is a summing variable that includes both "Acknowledgment" (7) and "Praise" (8). The feedback is given for either academic performance, other tasks, or behavior. All of the feedback variables are subsets of a more global variable called "All feedback."

B. Teacher and Teaching Aide Questionnaires

The Teacher and Aide Questionnaires were developed to provide information about the teachers and aides, such as number of years in Follow Through, Follow Through training received, and their attitudes toward the Follow Through model. Responses to the teacher and teaching aide questionnaires were received from 328 teachers (260 from Follow Through and 68 from Non-Follow Through classrooms) and 384 teaching aides (355 from Follow Through and 29 from Non-Follow Through classrooms) in the observation sample. The specific questions relating to training, satisfaction, and background experience provided the data used in this study of implementation.

The teacher and aide reports of their training in the sponsor's model are of special interest because they provide some idea of how the sponsors have been able to change the behavior of in-service teachers: it is of interest to see whether certain training methods or teacher characteristics are related to high implementation scores.

In addition, several characteristics of classroom personnel were examined to see whether they were related to model implementation. Such factors as Teacher/Aide satisfaction with the educational model, previous education, and the number of years spent teaching in the Follow Through program were investigated to see how they were related to successful implementation (if at all). The items selected from the questionnaires and the related analysis specifications are reported in Appendix H.

C. Tests

Baseline data were available for 25 of the first grade sites and 25 of the third grade sites (see Table 1). The contents of the Follow Through test battery have changed over the years of the longitudinal study, and differ across grade levels for each year of administration. The changes in the battery reflect the effort to adopt instruments that appeared more reliable and more valid than those first used. The following tests were used in the present analysis:

Baseline (pupils entering school)

- Wide Range Achievement Test (WRAT).

Post Tests (pupils having had some school)

- Metropolitan Achievement Test (MAT)--first grade and third grade.
- Raven's Coloured Progressive Matrices (Raven's), third grade.

- Coopersmith Self-Esteem Inventory (Coopersmith), third grade.
- Intellectual Achievement Responsibility Scale (IAR), third grade.

(See Appendix I for a description of analysis specifications for these tests.)

1. Baseline Test Data--The Wide Range Achievement Test (WRAT)

The WRAT--highly correlated with the MAT--is the baseline test for the study because it is the only test that was administered consistently during the first three years of Follow Through. The WRAT was initially used in the Follow Through evaluation because it is a short, multi-level, single instrument achievement test that measures achievement in reading, spelling, and arithmetic. The 1965 version of the WRAT test (J. F. Jastak and S. R. Jastak) is standardized and norms have been established, but the appropriateness of these norms* for the Follow Through sample has been questioned. For this reason, the MAT, which has been standardized on a larger population, and which examines achievement in greater depth at each grade level, was substituted for the WRAT as a measure of achievement in the Spring of 1972.

2. Post-Test Data (Spring 1973)

a. Metropolitan Achievement Tests (MAT) Form F

These tests (by Durost et al., 1970) were first included in the national Follow Through evaluation in Spring 1972. They were selected because they cover several areas of achievement, have norms based on a standardization sample that includes children of low-income families, and are reliable. The subscores from the MAT Primary I Test for word analysis, total reading, and math were computed for the first grade children. Subscores from the MAT Elementary Test for total reading, language, math computation, math concepts, math problem solving, and total math were computed for the third grade children.

b. Raven's Coloured Progressive Matrices (Raven's)

This test was originally designed by John C. Raven (1956, 1962) as a "culture-fair," nonverbal, intelligence test, but SRI uses the test as a measure of a child's problem-solving ability in visual perceptual tasks. Each test item presents the child with a pattern from which a piece is missing and the child is asked to select the appropriate piece from several alternatives. SRI prepared and uses an abbreviated 27-item, group-administered version of the original Raven's. Instructions were adapted by SRI from the 1965 Matrices Guide. These instructions were reviewed and accepted by agents designated by the author.

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*The norms were based on a sample for fewer than 2,000 pupils (5-8 years old) and, according to the technical manual "no attempt was made to obtain a representative national sample" (Jastak and Jastak, 1965, p. 9).

c. Coopersmith Self-Esteem Inventory (Coopersmith)

The Coopersmith is a noncognitive instrument designed by Stanley Coopersmith (1967) to assess a child's feelings of self-esteem. The test measures a child's feelings about himself, the way he thinks other people feel about him, and his feelings about school. The test contains 58 items, each of which consists of a set of statements. The child is asked to select which of the statements is "like me" or "not like me." The SRI version of the Coopersmith test was group administered in Spring 1973 and contains the original 58 items of the inventory. However, since eight of these items are used merely as a validity check, the raw score for the Coopersmith is based on the 50 items designed to measure the child's self-esteem.

d. Intellectual Achievement Responsibility Scale (IAR)

The IAR (Crandall, Katkovsky, and Crandall, 1965) is a group-administered, noncognitive measure designed to assess the extent to which the child takes responsibility for himself or attributes his successes or failures to the operation of internal or external forces. Each test item describes a positive or negative achievement experience and two alternative explanations of the event, one of which denotes internal control while the other denotes external control. The child is asked to select a response that describes whether he would be responsible for a particular event or someone else would be responsible for the event, e.g., I read well--because I study hard or because the books are easy.

Because the original 34-item IAR was designed for older children, SRI rewrote the items in more simplistic terms to make it more appropriate for Follow Through third graders. Two subscores are derived: one for those items related to a child's feeling of success, and the other for the items related to a child's feelings of failure. The items are mutually exclusive and a child could score high on both scales. For both subscores, the higher the score, the greater the indication of a child's attributing his successes and failures to internal forces.

D. The Classroom Roster--Demographic Information

The classroom roster is valuable because it provides a straightforward and relatively reliable source of information about the pupils. Specifically, the roster lists the classroom pupils by name, age, sex, ethnic group, language spoken at home, preschool experience, and the amount of Follow Through services received, if any. Other items of information available from the roster are classroom identifiers (room number, principal, school, address, district), classroom staff (teachers, aides, volunteers), evaluation design information (cohort, grade stream, grade level), and whether the classroom is Follow Through or Non-Follow Through. Appendix J lists the information used in this analysis from the Classroom Roster Form.

E. Summary

The variables described in this chapter are used for descriptive purposes as well as for statistical analyses. Some observation variables are used in the study of implementation, while other variables are used in the study of classroom processes as related to child outcomes.

Chapter IV

RELIABILITY

As a measurement technique, classroom observation has the potential of obtaining valuable information regarding teacher and child behavior. This potential is realized to the extent that the observation data can be shown to be reliable. Reliability, as Cronbach et al. (1972) have pointed out, is related to the notion of generalizability from a sample to some universe of interest. Medley and Mitzel (1963) indicate that the instability of classroom events probably contributes more unreliability to estimates of classroom processes than do observer differences. The current study was designed for three days of observation per classroom, two adult-focus and one child-focus, all to be done by the same observer. We would like the data that are collected to be a reliable description of what is occurring in each classroom during the spring of 1973.

The description, of course, has many potential sources of error. Classroom processes most certainly will vary from dav to day. The observers will vary somewhat in their accuracy in recording the data and the codes themselves may be overlapping and limited in describing what is actually happening. Thus, generalizability of scores derived from this set of data to other situations is uncertain. Since the observation system used here is relatively new, we need to know the magnitude of error arising from different sources and to judge the amount of error that can be tolerated while still providing useful descriptions of the classrooms.

In this report the question of reliability will be examined by looking at the extent to which (1) the observation procedure was properly followed; (2) the process being observed was stable from day to day; (3) the coding scheme was well defined; and (4) observer bias was introduced. Each of these issues will be examined in subsequent sections of this chapter:

- In Section A the field conditions and amount of data collected in the field are examined to assess the uniformity of the data collection;

- In Section B the day-to-day variability of the classroom processes is examined. Correlations between the two days of adult-focus observations were computed. From these, the Spearman-Brown reliability coefficient was determined for each sponsor and over all classrooms.

- Section C is a study of the confusability of the codes used in the FMO section of the observation instrument. If particular codes are often confused, they may not be clearly defined or they may be overlapping in definition. This study is an attempt to understand what codes are confused and consider their effect upon the interpretation of the data.

- Section D reports the accuracy of observers. This is a report of observers' accuracy in coding criterion videotapes during their field observations.*

- Section E reports the conclusions drawn about the reliability of the classroom observations.

A. Uniformity of Data

1. Number of Observations per Day

Sampling errors due to the amount of data collected have been assessed by comparing the number of observations per classroom and the number of recorded frames completed during each observation.

Observers were instructed to complete approximately four observations (COPs) each hour during the 5-hour observation day; hence, it was hoped that a total of 20 COPs would be completed each day. Over the 1,011 observation days, the adjusted** mean number of COPs completed each day was 18.88 with a standard deviation of 2.17 (see Appendix K for details).

At most sites, the mean number of observations completed per day ranged from 18 to 20, but at a few sites the mean was lower. A check of the Observer Logs for those few sites shows the following explanations of the lower number of COPs:

- At the University of Oregon's East St. Louis site, the mean number of COPs completed was 17.07. The observer reported that a Non-Follow Through first grade teacher was having trouble with her eyes and worked only a half day. On another day, the teacher left to attend a meeting, leaving a volunteer in charge. In both cases, observations had to be curtailed since observers were instructed to observe only the regular teacher or aide within the specified activities.

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*Unfortunately these studies of reliability could not use a design where pairs of observers visited classrooms, so that error due to observers and error due to variability in classroom processes could be distinguished. Such analysis could have addressed the question of how many observations are required to obtain a reliable estimate of classroom processes.

**The number of COPs completed were adjusted to include only those observations which had 50 or more interaction frames.

- At High/Scope's Greenwood, Miss., site, the mean number of COPs completed was 17.30. The observer described schedule problems in almost every third grade classroom she observed: one class was dismissed early to attend a baseball game; another class left for a field trip; a Non-Follow Through teacher spent some time (enough to make it seem important to record the fact) working on the bulletin board; and another was not present during two class periods.

- At High/Scope's New York City site, the mean number of COPs completed was 15.70. The observers reported interference because of testing and physical education periods during which no observations were made.

- For the third grade at EDC's Rosebud, Texas, site the mean number of COPs completed was 17.50. The observer reported that electrical failure cut short an observation day, reducing the number of COPs completed on that day to 13.

- At University of Arizona's Des Moines site the mean number of COPs completed was 14.93. The observers reported early dismissals on three days as well as interruptions on two of those days due to a birthday party and gymnastics.

- At University of Kansas' New York City site the mean number of COPs completed was 16.86. The observation schedule was changed one day due to a teacher's absence and an Easter party interrupted another day. Classes were dismissed early on two other days for a play and assembly.

Apparently, a fewer number of COPs occurred for certain classrooms because of intervening events during the class day which prohibited observations. Any day which had fewer than twelve observations was deleted from the data.

2. Number of Frames Recorded per FMO

Although the FMO portion of the COP comprises 76 interaction frames, it is not always possible, nor is it necessary, to complete all of them during a 5-minute observation period; however, it was emphasized to observers in their training sessions that 50 frames was the minimum number that would be considered acceptable for an FMO. As can be seen in Appendix K, the mean number of interaction frames completed per FMO over the total 1,011 observation days was 67.27 with a standard deviation of 5.97. At no sites was the mean fewer than 59.68 frames (see Appendix K).

3. Observers' Reports of Problems in Observation

Sampling errors due to the character of classroom events have been examined through the Observers' Daily Logs and Weekly Roster Lists. This section briefly describes and categorizes descriptive anomalies in classrooms as reported by observers; that is, the experiences, difficulties, schedule problems, annoyances, and observer judgments that might modify or change a typical observation day. Some of the difficulties which observers described as anomalies were daily schedules not adhered to, absence or departure of focus person, and a teacher's or child's reluctance to be observed.* A few other anomalies that were mentioned presented more serious problems because the classroom procedures were so disrupted as to make it unlikely that a good sample of classroom events was recorded. The data from 12 such observation days were discarded for the following reasons: 4 days' data were deleted because of unusual activities in the classroom (e.g., a day of picture taking, a day devoted to preparing for and attending a party); all-day testing occurred on 4 observation days; and 4 days were deleted because a substitute teacher was observed. In addition to the discarded data, 12 days' observation booklets were lost in shipping, and 10 days of child-focus observations were not made in New York City because of restrictions placed on observing children.

The anomalies were drawn primarily from the Weekly Roster Lists and secondarily from the Classroom Observer Daily Log (see Appendix E for a description of these records). If eight or more of the 20 observations were disturbed, the total day of observation was eliminated. Otherwise only those COPs affected were eliminated from the data tape.

The conclusions to be drawn from the analysis of the data collected are:

(1) Observers for the most part followed instruction and collected the specified number of observations per classroom;

(2) The number of frames per observation is adequate; and,

(3) Observations conducted on atypical days have been deleted.

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*Although observers were trained to be unobtrusive, some teachers were self-conscious during the early part of the observation period. Children would sometimes become aware that they were being observed and feel self-conscious; however, no observer reported having to discontinue an observation for this reason.

B. Assessment of the Variability of the Classroom Processes

In this section, the day-to-day variability of what is occurring in the classroom is examined as a source of unreliability of the classroom observation data. For the purposes of this report, we would like to have reliable descriptions of what was occurring in a classroom during Spring 1973. The activities and interactions that occur in the classroom no doubt change radically over the course of the school year as adults and pupils become acquainted, as the subject matter changes, and as holiday seasons pass. Even when inferences are confined to the spring of the school year, after the Follow Through teacher has had approximately 6 months to implement a sponsor's model, classroom processes no doubt vary from day to day. It was therefore important to find out how reliable our descriptions of these processes could be when based on only a few days of observation.

The best way to assess this reliability would probably have been to follow what Cronbach et al. (1972) call a G study. This procedure assesses variation due to observers from day-to-day in conjunction with day-to-day variation in what is observed. Unfortunately this type of reliability study was not conducted due to constraints of time and funds. In lieu of this type of study the data available from the CCLs and FMOs was used to assess day-to-day variability. In a separate study observer realiability was examined.

Three consecutive days of observation were scheduled for each classroom, both Follow Through and Non-Follow Through. The values of the CSI, PEI, and CCL variables are based on all three days of observation; the values of the adult/activity focus FMO variables are based on two days of observation. (The child-focus observations were based on a single day of child-focus observations per class.)

A subset of CCL and FMO variables were chosen for the assessment of the stability of the classroom processes. The variables were selected on the basis of how well they described sponsor's programs. Results from previous evaluations (Stallings, Baker, Steinmetz, 1972; Stallings, 1973) were used in the selection. Table 5 shows the selected variables.

For each variable the correlation between the observed values on the two days of adult/activity focus observations were computed. The Spearman-Brown formula was applied to the correlations to derive the reliability of two or three days of observation for the FMO and CCL variables respectively.* (Since there was only a single day of child-focus observations per class, the child-focus FMO variables were not included in this analysis.)

The reliability coefficient may be interpreted as the proportion of total variability of the classroom means that may be considered "true"

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*This procedure was suggested by Eleanor Maccoby.

Table 5

RELIABILITY COEFFICIENTS FOR SELECTED CCL AND FMO VARIABLES BY SPONSOR, NON-FOLLOW THROUGH, AND OVERALL

	ALL		Far West		University of Arizona		Bank Street		University of Oregon		University of Kansas		High/Scope		EDC		NFT	
	1st	3rd	1st	3rd	1st	3rd	1st	3rd	1st	3rd	1st	3rd	1st	3rd	1st	3rd	1st	3rd
N =	166	171	20	20	22	24	18	19	18	19	18	17	18	19	19	17	33	36
CCL Variables																		
Var 066 Numbers, math, arithmetic	.83	.68	.74	.72	.40	.43	.81	--*	.72	.39	.68	.85	.94	.85	.66	.92	.72	.66
Var 067 Reading, alphabet, language	.88	.82	.84	.72	.91	.83	.80	.68	.51	.80	.89	.63	.88	.94	.86	.84	.76	.67
Var 082 Wide variety of activities, concurrent	.88	.88	.63	.94	.95	.57	.90	.72	.71	.80	.71	.92	.73	.86	.80	.93	.83	.78
Var 104 Adult with one child	.90	.84	.93	.78	.88	.76	.83	.80	.52	.83	.88	.18	.82	.87	.83	.73	.77	.87
Var 118 Overall occurrences, child engaged in/ activity without any adult	.91	.91	.71	.48	.97	.87	.89	.82	.84	.94	.30	.90	.82	.94	.59	.89	.89	.93
N =	166	171	20	20	22	24	18	19	18	19	18	17	18	19	19	17	33	36
FMO Variables																		
Var 360a Child responses, academic	.89	.88	.90	.78	.92	.62	.95	.87	.84	.94	.66	.89	.80	.80	.74	.95	.65	.82
Var 374a Adult instruction, academic	.74	.86	.46	.76	.77	.83	.73	.87	.81	.95	.77	.89	.79	.56	.58	.82	.83	.86
Var 402a Adult praise, academic	.96	.89	.91	.73	.80	.70	.54	.63	.92	.83	.87	.85	.79	.93	.72	.85	.88	.85
Var 406a Adult positive corrective feedback, academic	.87	.86	.85	.75	.77	.93	.82	.92	.77	.93	.89	.85	.82	.84	.81	.68	.81	.87
Var 451a Adult academic comments to children	.89	.88	.80	.83	.90	.55	.92	.86	.78	.94	.48	.86	.90	.75	.74	.94	.74	.79

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*A low negative correlation was obtained.

variance in classroom variables. The remaining variability is assumed to arise from error of measurement. A primary factor contributing to error is the variability of the classroom processes from day to day. Another factor is absence variability from day to day, and differences between absences in this respect across classrooms. A high reliability coefficient, say above .70, indicates that the classrooms maintain the same rank order on observed scores from day to day. This would indicate that error due to day to day variability within classrooms or absences is slight though it would not rule out the possibility of systematic error operating across absences.

The reliability coefficients are displayed for each sponsor, Non-Follow Through, and all classrooms in Table 5 for the selected CCL and FMO variables. The reliability coefficients were computed separately for the first and third grade.

Over all classrooms, the coefficients are high. Scattergrams in Figures 4 and 5 illustrate the variability between the two days of observation for two of the variables. The coefficients for the CCL variables are above .70 with the exception of Variable 66 (Numbers, Math, Arithmetic) for the third grade, where the coefficient was .68 (see Figure 6). For the adult/activity focus FMO variables, the coefficients were all above .85 with the exception of Variable 374a (Adult instruction, academic) for first grade where the coefficient was .74.

For the individual sponsors, approximately 84% of the 140 coefficients that were computed had a value of .70 or more. The reliability coefficient for Variable 66 (Numbers, math, arithmetic) was below .70 in six out of the fourteen cases. In particular, the coefficients were extremely low for both grade levels of University of Arizona, third grade of Bank Street and the University of Oregon. The negative coefficient for Bank Street's third grade is the result of one classroom where an extremely high proportion of the class time was spent in math on the first day and small proportion of time was spent in math on the second day. The extremely low reliability coefficients for the University of Oregon on Variable 66 in the third grade and Variable 67 in the first grade are notable since this sponsor's program is considered to be more structured than others.

The University of Kansas, also considered to be more structured, had the greatest number of variables with coefficients below 0.70. Out of the ten variables analyzed, in the first grade which were analyzed for University of Kansas three variables were below .70 reliability, and in the third grade two variables were below .70 reliability. The lowest of these was Variable 104 (Adult with one child). This variable is not a critical variable of the University of Kansas and, therefore, would not affect the interpretation of their implementation score. High/Scope classrooms showed the highest reliability. No first grade classrooms and only one third grade classroom had a reliability of lower than .70.

The other instances of low reliability coefficients do not exhibit any particular pattern, but rather are scattered among different combinations of variables, sponsors, and grade levels.

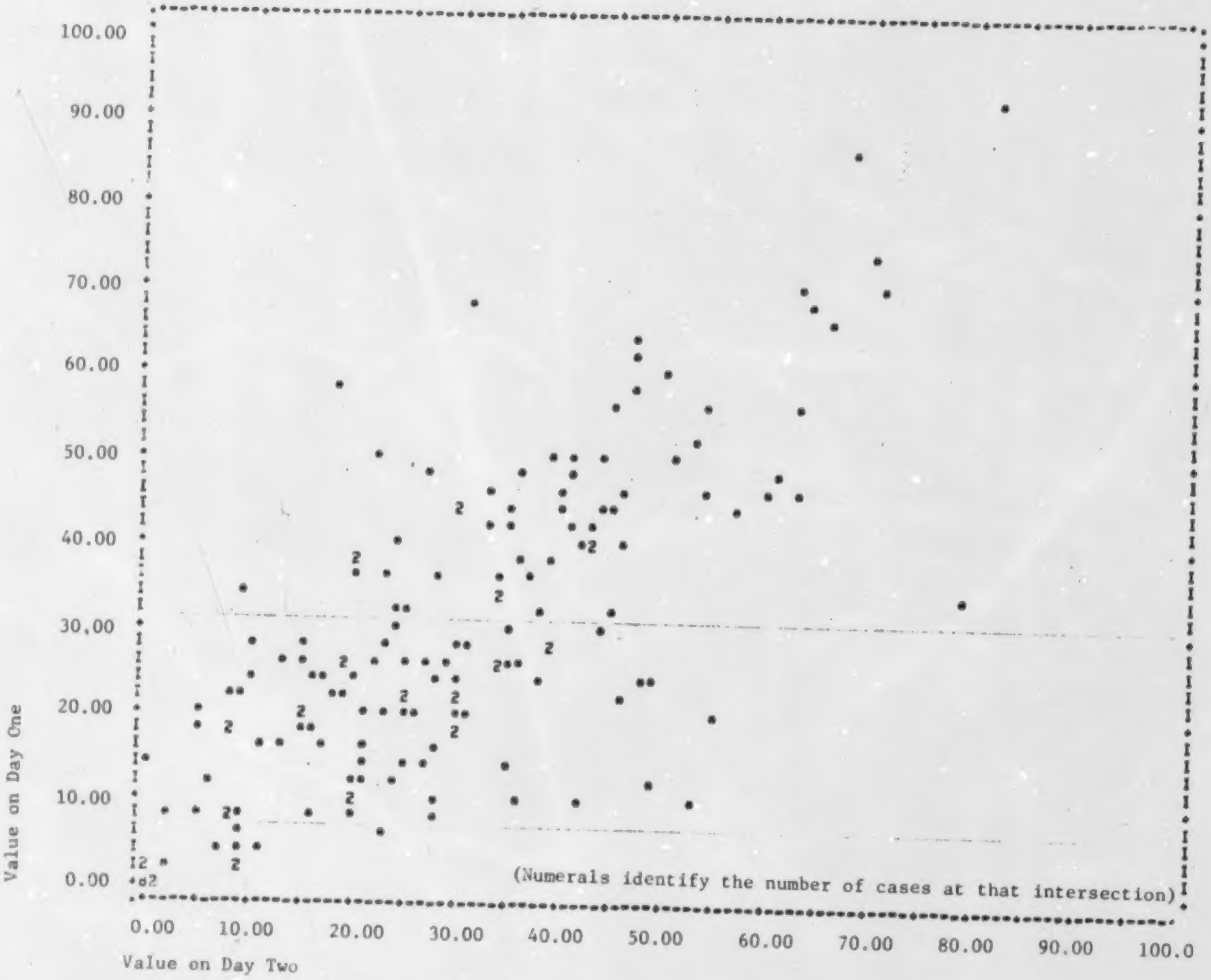
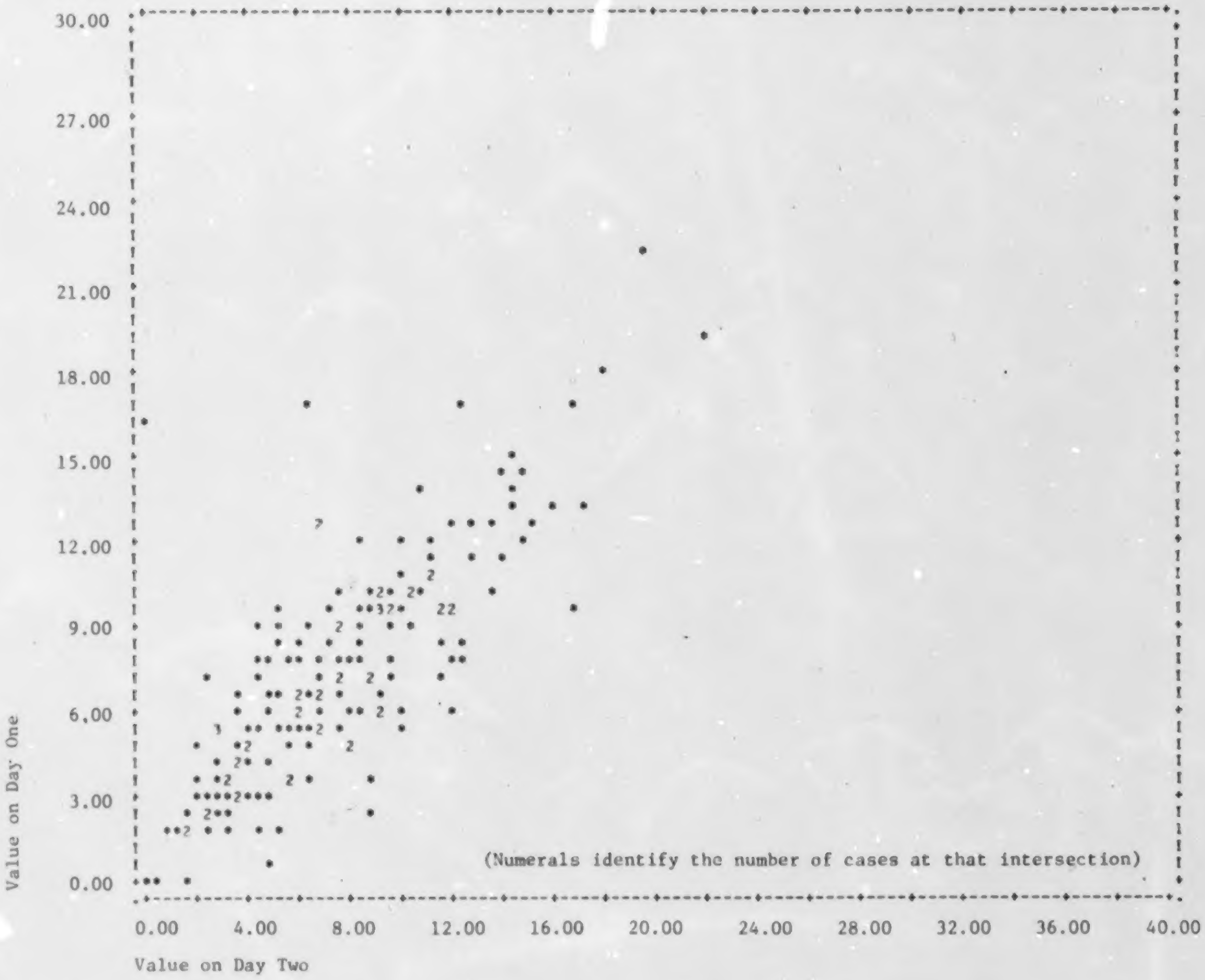


FIGURE 4 DAY 1 AGAINST DAY 2 ON VAR. 118, OVERALL OCCURRENCE OF CHILD ENGAGED IN ACTIVITY WITHOUT ANY ADULT



(Numerals identify the number of cases at that intersection)

FIGURE 5 DAY 1 AGAINST DAY 2 ON VAR. 360, CHILD RESPONSES, ACADEMIC--
ALL THIRD GRADE CLASSROOMS

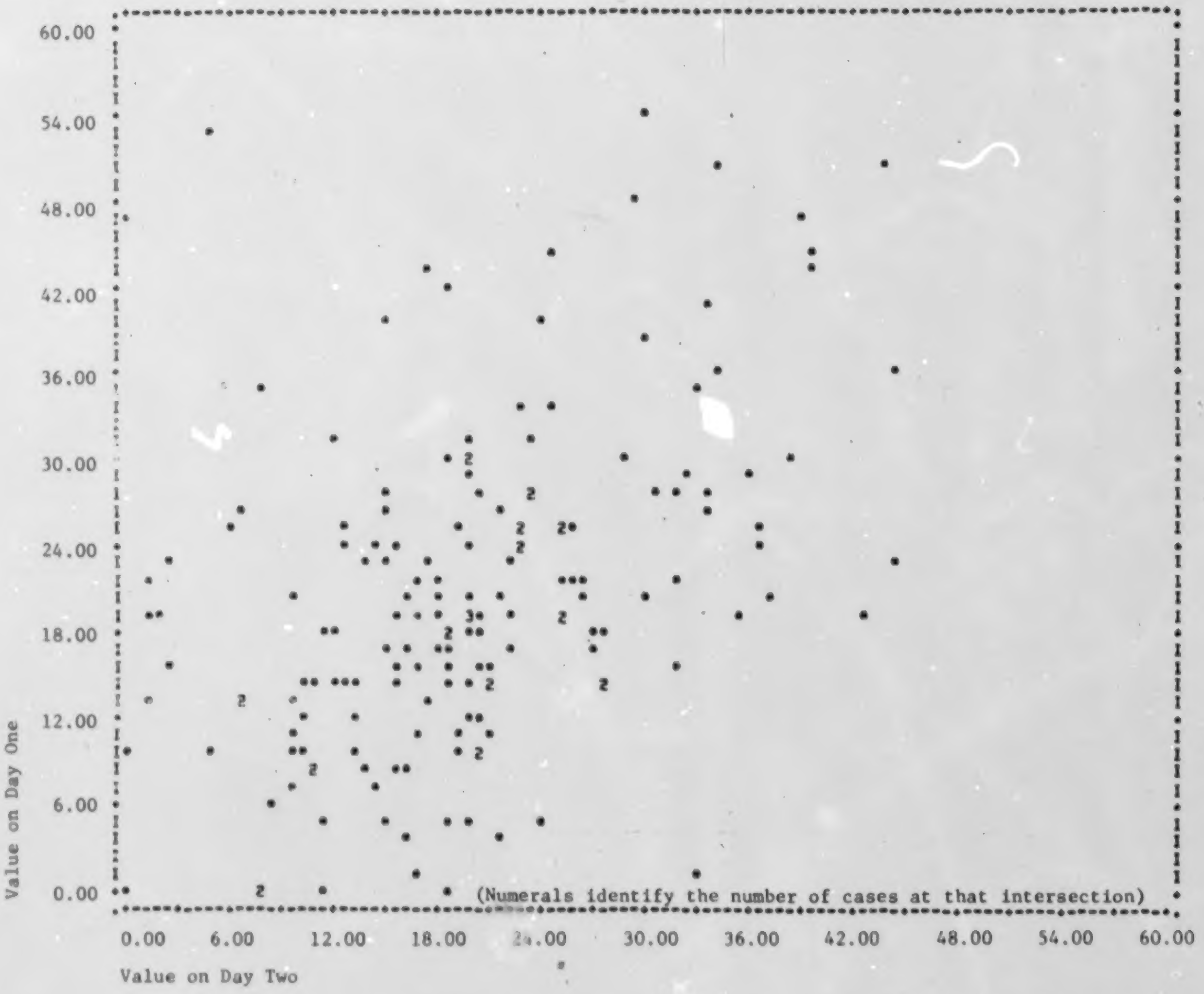


FIGURE 6 DAY 1 AGAINST DAY 2 ON VAR. 66, NUMBERS, MATH, ARITHMETIC--
ALL THIRD GRADE CLASSROOMS

The reliability coefficients for the Non-Follow Through classrooms are all in the moderately high to high range. For the third grade, the reliability coefficients for both Variable 66 (Numbers, math, arithmetic) and Variable 67 (Reading, alphabet, language) are slightly less than .70. The one other variable with a reliability coefficient less than .70 is Variable 360a (Child responses, academic) for the first grade.

In summary, the examination of the reliability coefficients computed over all classrooms indicate that the reliability of instructional processes is surprisingly high. The differences among classrooms account for a substantial portion of the variability of the variables we have selected. The same conclusion holds with a few exceptions for the coefficients computed for each sponsor and grade level. The only variable for which the reliability was low for several sponsors was Variable 66 (Numbers, math, arithmetic).

C. A Study of the Confusability of the Codes

The present study examines the accuracy of observers coding a standard set of stimuli. In this procedure the observer's bias is examined, as well as the confidence that can be placed in the observation code itself. Through these procedures the exact nature of the confusion of codes can be identified.

In previous SRI reliability studies, the technique of pairing the observers with an SRI trainer has been used.* However, there are some problems in assessing inter-rater reliability. First, there is some variability in the coding skills of SRI trainers. Second, there is most certainly a variability in the incidents which occur in the classrooms, in what is selected for observation, and in which codes are used in the observations. The optimum arrangement might be to have all observers and SRI trainers observe the same phenomena in the same classroom at the same time. But, as Soar (1973) says:

> The critical problem (of paired observers) is the effect on the classroom of increasing the number of observers. One observer represents a threat to many teachers and a distraction to the children, at least initially, and as the number of observers increases, these difficulties increase, probably more like a geometric function than an arithmetic one.

In an effort to avoid the problems encountered with the paired observer method, SRI staff has attempted to assess the accuracy of observers through the use of controlled videotape examples. This procedure allows each interaction (or frame) and sequences of frames to be analyzed for accuracy, whereas previously only simple marginal frequency counts of single codes could be computed.

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*Stallings (1973) reports inter-rater agreement of 80%+ for frequently used Who and What codes and 70%+ for frequently used How codes.

Other investigators in observational research also use videotapes to assess observer accuracy. Soar (1973) used tapes of actual classroom events, and Simmel (1973) cleverly used the last ten minutes of the Johnny Carson Show to check observer accuracy on a weekly basis. Although videotapes are useful, their limitations also should be recognized:

- Because of the difficulty in seeing and hearing, videotapes are more difficult to code than live conversations;
- It is more difficult to understand the gestalt of the situation from a tape than it is from a live situation in the classroom;
- Simulated skits are likely to be more clear-cut examples than those which actually occur in classrooms.

1. A Description of Procedures*

To check confusability of codes and observer reliability in a way different from that of either Soar or Simmel, SRI staff produced ten videotaped skits. Each simulation is approximately 20 interaction frames long. These skits attempt to present concise, clear examples of each code used in recording classroom interactions on the SRI observation instrument. Each skit begins with a still picture and the voice of a narrator who explains the situation and identifies the focus person. The skit is then shown at regular speed. After the skit is shown once, the still picture and narrator again identify the focus person. Each skit is then shown again, this time with a 2- to 3-second pause between each interaction. The observers are instructed to code this stop-action portion of the skit and to code one frame during each stop or pause.

These videotaped skits were administered to the observers by SRI field staff. The tape was administered to the observers when at least three-fourths of the observations were completed but not later than 10 days after the end of the observations. This procedure allowed whole frames and sequences of frames to be analyzed where previously we could only compute reliability on the basis of simple marginal frequency counts of single codes.

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*These procedures were developed at SRI by J. Philip Baker, Phillip Giesen, and Charles Norwood.

2. Procedural Problems

The reliability coding booklets were returned to SRI and compared with the criterion sequences. This revealed that some observers were coding more than one frame during a pause. Conversely, some observers, possibly while turning pages, omitted frames. The trainers reviewed the coding sequences and deleted extraneous frames or inserted spaces so as to align the observers' sequences with the criterion sequences. Three trainers performed this operation. Since judgment is involved, a check was made on the code sequences of 10 observers to see whether the trainers arranged the sequences in the same manner. The average agreement between trainers in arranging these sequences was 96.4%.

Other procedural problems were also encountered due to the experimental nature of the techniques used. Comments received from the observers indicated that not all of the equipment utilized to administer the tapes was in good condition, and, as a result, the sound or pictures were of poor quality. Also, some examples on the criterion tape were technically less than well executed. The most serious problem, however, was that there were too few examples of several of the codes on the criterion tape. Five or fewer examples of a code limited the assurance that representative examples of the code were shown. Further, if an observer missed two out of four possible instances of a code, he had a score of only 50% of the criterion correct; however, if he missed two out of 30 possibilities, he had a score of 93% of the criterion correct. For this reason, the codes which have five or fewer examples will not be interpreted in this analysis. The number of examples of each code on the complete set of tapes ranges from zero to 40. (This problem is being remedied by the development of more skits.)

3. A Description of Confusability Matrices

Confusability of codes refers to codes which were confused with the correct codes by an observer (see Table 6 for a brief explanation of the SRI What and How codes). Confusability matrices were constructed by tallying the observer code sequences. For each frame, a tally mark was entered in the box or cell created by the juncture of the criterion code and the code marked by the observer. Figure 7 shows an example of a confusability matrix for the What codes. The principal diagonal contains the cells indicating correct coding; other cells contain incorrect coding. The column totals are the total number of criterion examples shown on the videotape for each code; the row totals are the total number of times an observer recorded each code, whether correctly or not. An examination of a particular cell reveals whether the code was recorded correctly or incorrectly and, if recorded incorrectly, shows exactly which codes were confused.

The total number of tallies in each cell can be used to calculate the rates of accuracy in two related but distinct ways. The first

Table 6

SRI What AND How Codes

What Codes

1 - Command or Request
1Q - Direct Question
2 - Open-ended Question
3 - Response
4 - Instruction, Explanation
5 - Comments, Greetings; General Action
6 - Task-related Statement
7 - Acknowledge
8 - Praise
9 - Corrective Feedback
10 - No Response
11 - Waiting
12 - Observing, Listening
NV - Noverbal
X - Movement

How Codes

H - Happy
U - Unhappy
N - Negative
T - Touch
Q - Question
G - Guide/Reason
P - Punish
O - Object
W - Worth
DP - Dramatic Play/ Pretending
A - Academic
B - Behavior

	What Codes	Criterion Examples (by Column)																Total No. Recorded by Observer n
		1	1Q	2	3	3NV	4	4NV	5	5NV	6	7	8	9	10	11	12	
Code as Recorded by Observer (by Row)	1	3																3
	1Q		20														1	21
	2		1	5														6
	3		1		26							1						28
	3NV					2												2
	4						4											4
	4NV							8										8
	5								0	1	1							2
	5NV									6								6
	6			1							16							17
	7											8						8
	8											1	2					3
	9				1				1					8				10
	10														0			0
	11															3		3
	12						3					1					22	26
Total Number of Examples on Criterion Tapes		3	22	6	27	2	7	8	1	7	17	11	2	8	0	3	23	147

FIGURE 7 TOTAL NUMBER OF WHAT CODES RECORDED IN EACH CELL BY ONE OBSERVER

procedure described above allows an examination of observer bias. If the number in a given cell is compared to the total number of recordings (row total) of the code that pertains to that cell (see the row indicator), a ratio of correct or incorrect responses can be derived. For the cells that fall on the main diagonal, the numbers indicate the proportion of times the code recorded by an observer was correct. For the cells that do not fall on the diagonal, the number indicates the proportion of error. This accuracy rate, the accuracy rate of each observer on each code, indicates the ratio of correct or incorrect codes to the total number of coded observations.

The point of the second procedure is to assess the confidence that can be placed in each code. The second accuracy figure can be arrived at by comparing the number of tallies located in the same cell to the total number of examples on the criterion tape presented of that specific code (see column total). Again, the number arrived at shows the proportion of correctness to incorrectness, based on whether the cell falls on the diagonal, or away from it. The proportion of times the criterion instances were recorded correctly or incorrectly is called the criterion accuracy rate.

Figure 8 presents the proportion of cell tallies to the row totals for each cell. This provides a matrix that presents the accuracy rates in place of the raw scores shown on Figure 7. For example, the observer recorded a 1 code correctly three times, so that the accuracy rate is 100, or 1.00. In the second row, 1Q was recorded correctly 20 out of 21 times, or 95% of the total number of times.

Looking across the 1Q row, we see that the observer coded on example of Code 12 as 1Q 5% of the time. For another example, we look across the row of Code 5 and see that our observer did not code any 5s correctly. Instead, she mistakenly coded two examples of Code 5 as 5NV and as 6.

In Figure 9 the proportion of criterion examples for each code correctly recorded by the observer are found in the diagonal cells. Entries in cells, other than in diagonal cells, down the column marked by the correct code are instances of confusion. As can be seen in the 1Q column of Figure 9, Code 2 and Code 3 were sometimes confused with the Code 1Q. The bottom row of the figure presents the correct number of criterion examples of each code which appeared on the videotape. The last column on the figure lists the number of times the observer recorded each code. In the Code 12 column on Figure 9, the observer recorded three more Code 12s than appeared on the videotapes. Apparently, these three were confused with some other code.

Figures 8 and 9 can be overlaid so that the top entry in a cell refers to the accuracy of what the observer recorded, and the lower entry refers to the percent of criterion examples which were correctly coded. Figure 10 illustrates such an overlay. The combined figure tells us that when this observer recorded a 7, it was indeed a 7 (there are

	What Codes	Criterion Examples																Total No. Recorded by Observer
		1	1Q	2	3	3NV	4	4NV	5	5NV	6	7	8	9	10	11	12	
Code as Recorded by Observer (by Row)	1	1.00																3
	1Q		0.95														0.05	21
	2		0.17	0.83														6
	3		0.04		0.93							0.04						28
	3NV					1.00												2
	4						1.00											4
	4NV							1.00										8
	5								0.00	0.50	0.50							2
	5NV									1.00								6
	6			0.06							0.94							17
	7											1.00						8
	8											0.33	0.67					3
	9				0.10				0.10					0.80				10
	10														0.00			0
	11															1.00		3
	12						0.12					0.04					0.85	26
Total Number of Examples on Criterion Tape		3	22	6	27	2	7	8	1	7	17	11	2	8	0	3	23	147

FIGURE 8 PROPORTIONAL DISTRIBUTION OF WHAT CODES AS RECORDED BY ONE OBSERVER

	What Codes	Criterion Examples (by Column)																Total No Recorded by Observer
		1	1Q	2	3	3NV	4	4NV	5	5NV	6	7	8	9	10	11	12	
Codes	1	1.00																3
	1Q		0.91														0.04	21
	2		0.05	0.83														6
	3		0.05		0.96							0.09						28
	3NV					1.00												2
	4						0.57											4
	4NV							1.00										8
	5								0.00	0.14	0.06							2
	5NV									0.86								6
	6			0.17							0.94							17
	7											0.73						8
	8											0.09	1.00					3
	9				0.04				1.00					1.00				10
	10														0.00			0
	11															1.00		3
	12						0.43					0.09					0.96	26
Total Number of Examples on Criterion Tape		3	22	6	27	2	7	8	1	7	17	11	2	8	0	3	23	147

FIGURE 9 PROPORTIONAL DISTRIBUTION OF WHAT CODES SHOWING HOW CRITERION EXAMPLES WERE RECORDED BY ONE OBSERVER

	What Codes	Criterion Examples (Lower Numbers in Cells)																Total No. Recorded by Observer
		1	1Q	2	3	3NV	4	4NV	5	5NV	6	7	8	9	10	11	12	
Codes as Recorded by Observer (Upper Numbers in Cells by Row)	1	1.00 1.00																3
	1Q		0.95 0.91														0.05 0.04	21
	2		0.17 0.05	0.83 0.83														6
	3		0.04 0.05		0.93 0.96							0.04 0.09						28
	3NV					1.00 1.00												2
	4						1.00 0.57											4
	4NV							1.00 1.00										8
	5								0.00 0.00	0.50 0.14	0.50 0.06							2
	5NV									1.00 0.86								6
	6			0.06 0.17							0.94 0.94							17
	7											1.00 0.73						8
	8											0.33 0.09	0.67 1.00					3
	9				0.10 0.04				0.10 1.00					0.80 1.00				10
	10														0.00 0.00			0
	11															1.00 1.00		3
	12						0.12 0.43					0.04 0.09					0.85 0.96	26
Total Number of Examples on Criterion Tape		3	22	6	27	2	7	8	1	7	17	11	2	8	0	3	23	147

FIGURE 10 PROPORTIONAL DISTRIBUTION OF WHAT CODES FOR ONE OBSERVER FOR BOTH RECORDED AND CRITERION ACCURACY

no other entries in the Code 7 row). However, she only recorded eight 7s and there were actually 11 examples on the videotapes. Looking down the column for Code 7 and at the lower entry in the cell, we see that examples of 7 were recorded as 3 for 9% of the time, as 8 for 9% of the time, and as 12 for 9% of the time. We can conclude from this example that when the observer recorded a 7 it was truly a 7, but she underestimated the number of times a Code 7 occurred. She recorded some of the Code 7s as Code 3, Code 8, or Code 12.

4. Confusion of Observation Codes (A Study Combining the Results of 63 Observers)

Analyses of these matrices were used in two ways. First, by combining the results for all observers, the extent of general confusability of codes could be examined. Codes that reveal a high rate of confusion among several observers suggest these possible causes: an overlapping of code definitions, poor videotape examples, or less-than-adequate training procedures. Second, the accuracy of individual observers could be examined with these matrices. For example, if an observer were not very accurate on Code 8 (praise), then codes using "praise" could be examined for anomalies.* The findings reported here represent 63 observers spread among 30 geographical locations.

How the observers coded the videotaped examples is shown in Figure 11. The diagonal shows the number of correct codings. The row at the bottom of the figure is the number of videotape criterion examples coded by all of the observers. Each figure in the bottom row can be compared with the corresponding cell in the diagonal. For example, Code 1 was recorded correctly 160 times out of a possible 245 times. The other entries in the Code 1 column are sources of confusion.

The proportion of times that the observers were correct in their recordings is presented in Figure 12. For example, the observers recorded Code 1Q correctly 80% of the time. Looking across the 1Q row, we see that 2% of the time when a Code 1Q was recorded it was truly a Code 1, and 11% of the time a Code 2** should have been recorded.

The proportion of videotaped examples recorded by the 63 observers is shown in Figure 13. The number in the diagonal reports the percent recorded correctly. The numbers in the columns outside of the diagonal indicate the source of error. If all of the numbers in the

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*Caution: Even if the observer agreed exactly with the criterion examples, generalization in a study of this type would still be limited by the day-to-day variability of classroom events.

**Errors involving less than 3% of the coding occurrences are not included on the figure.

	What Codes	Criterion Examples																Total No. Recorded by Observer
		1	1Q	2	3	3NV	4	4NV	5	5NV	6	7	8	9	10	11	12	
Codes as Recorded by Observers	1	160	13	2	5	1	3	0	3	0	9	1	0	13	0	0	12	222
	1Q	27	966	135	24	1	10	0	0	0	4	4	0	29	0	0	12	1212
	2	0	153	156	3	1	0	0	0	0	0	1	0	3	0	0	0	317
	3	1	35	4	1310	17	2	0	4	2	29	14	0	10	0	0	19	1447
	3NV	2	0	0	14	142	2	0	0	9	4	4	0	0	0	0	3	180
	4	2	9	0	34	1	344	11	0	1	7	8	0	8	0	0	55	480
	4NV	2	1	0	5	2	3	480	0	31	2	13	2	0	0	2	5	548
	5	14	7	0	18	1	2	19	37	39	200	3	3	16	0	0	6	365
	5NV	1	1	0	0	3	2	96	2	343	6	5	2	0	0	17	1	479
	6	27	31	22	75	1	21	11	5	3	581	36	0	29	0	0	11	853
	7	0	3	1	38	1	7	0	0	0	1	455	5	10	0	0	6	527
	8	0	0	0	7	0	1	0	0	0	4	22	106	2	0	0	3	145
	9	3	3	0	9	0	13	1	2	0	23	2	1	378	0	0	4	439
	10	1	3	0	1	11	1	0	0	6	0	0	0	0	0	3	5	31
	11	0	0	0	1	0	0	0	0	5	0	0	0	0	0	125	1	132
	12	5	27	0	28	6	62	4	3	19	11	37	2	4	0	29	1190	1427
Number of Examples Over All Observers		245	1252	320	1572	188	473	622	56	458	881	605	121	502	0	176	1333	8804

FIGURE 11 TOTAL OF WHAT CODES RECORDED IN EACH CELL BY 63 OBSERVERS

	What Codes	Criterion Examples																
		1	1Q	2	3	3NV	4	4NV	5	5NV	6	7	8	9	10	11	12	
Codes as Recorded by all Observers	1	0.72*	0.06											0.06				
	1Q	0.02	0.80	0.11														
	2		0.48	0.48														
	3		0.02		0.91						0.02							
	3NV				0.08	0.79												
	4				0.07		0.72										0.11	
	4NV							0.88		0.06								
	5				0.05			0.05	0.10	0.11	0.55			0.04				
	5NV							0.20		0.72								
	6	0.03		0.03	0.09						0.68	0.04		0.03				
	7				0.07							0.86						
	8											0.15	0.73					
	9										0.05			0.86				
	10														0			
	11															0.95		
	12						0.04										0.83	
Total Number of Examples on Criterion Tape		4	20	5	26	3	8	11	1	7	16	11	2	9	1	3	23	

*Only numerals in the diagonal report proportion correctly coded.

FIGURE 12 PROPORTIONAL DISTRIBUTION OF WHAT CODES RECORDED BY 63 OBSERVERS

	What Codes	Criterion Examples																
		1	1Q	2	3	3NV	4	4NV	5	5NV	6	7	8	9	10	11	12	
Codes	1	0.65*	0.01											0.03				
	1Q	0.11	0.77	0.42										0.06				
	2		0.12	0.49														
	3		0.03		0.83													
	3NV					0.76												
	4						0.73										0.04	
	4NV							0.77		0.07								
	5								0.66	0.09	0.23							
	5NV							0.15		0.75						0.10		
	6	0.11		0.07	0.05	0.09	0.04		0.09		0.66	0.06		0.06				
	7											0.75	0.05					
	8												0.88					
	9													0.75				
	10														0.00			
	11															0.71		
	12						0.13					0.06				0.16	0.89	
Total Number of Examples on Criterion Tape		4	20	5	26	3	8	11	1	7	16	11	2	9	1	3	23	

*Only numerals in the diagonal report proportion correctly coded.

**Sources of error less than three percent are not included on this figure.

FIGURE 13 PROPORTIONAL DISTRIBUTION OF WHAT CODES SHOWING CRITERION EXAMPLES RECORDED BY 63 OBSERVERS**

columns were in the diagonal cell, the result would be 100% correct. The total number of possible examples on the videotape are listed on the bottom row. For example, Code 1Q was recorded correctly 77% of the time, whereas 16% of the time it was confused with Codes 1, 2, or 3.

Figure 14 is an overlay of Figures 12 and 13. This provides the data necessary to quickly assess the observers' accuracy (by looking at the topmost entry in a cell) and the percent of criterion codes which have been recorded (by looking at the lower entry in a cell).

a. Findings of What Code Confusions

Since a What code is required for each interaction, each recorded frame must include a recording of a What code. The observer has the option only of recording the correct (or criterion) code or recording the wrong code. The entire frame is considered void if no What code is recorded.

In Figure 14, four of the What codes have been separated into two categories: the What code alone and the What code with its How modifier. This was done because the meaning or definition of the What code is modified or sometimes changed by the addition of these specific How codes. An example of this is the Code 5. The definition of Code 5 is "general comment," but the definition of Code 5NV is "general action."

As mentioned earlier, the number of criterion examples for some codes is small which limits the conclusions that can be drawn regarding these low frequency codes. For this reason, codes with five or fewer examples on the videotapes will not be discussed.

Nine of the 16 What codes have six or more criterion examples of each code. These are the shaded diagonal cells in Figure 14. Of these nine (1Q, "direct question;" 3, "response;" 4, "instruction, explanation;" 4NV, "nonverbal instruction;" 5NV, "nonverbal general action or play;" 6, "task-related statement;" 7, "acknowledge;" 9, "corrective feedback;" and 12, "observing, listening"), only Code 6 has an observer accuracy rate that is lower than .70.

Code 6, "task-related statement," was confused most often with Code 3, "response." It was also sometimes confused with examples which were actually Code 1 ("command or request"), Code 2 ("open-ended question"), and Code 9 ("corrective feedback"), as shown in Row 6. This suggests that the definitions and training procedures need to be more exact regarding when to code a task-related statement as Code 6. The numbers in the lower section of the cell (looking down the 6 column) indicate that 23% of the time the criterion examples of Code 6 were recorded as 5.

	What Codes	Criterion Examples (Lower Numbers in Cells)															
		1	1Q	2	3	3NV	4	4NV	5	5NV	6	7	8	9	10	11	12
Codes as Recorded by Observers (Upper Numbers in Cells by Row)	1	0.72 0.65	0.06 0.01											0.06 0.03			
	1Q	0.02 0.11	0.80 0.77	0.11 0.42										0.06			
	2		0.48 0.12	0.48 0.49													
	3		0.02 0.03		0.91 0.83						0.02						
	3NV				0.08	0.79 0.76											
	4				0.07		0.72 0.73										0.11 0.04
	4NV							0.88 0.77		0.06 0.07							
	5				0.05			0.05	0.10 0.66	0.11 0.09	0.55 0.23			0.04			
	5NV							0.20 0.15		0.72 0.75						0.10	
	6	0.03 0.11		0.03 0.07	0.09 0.05	0.09	0.04		0.09		0.68 0.66	0.04 0.06		0.03 0.06			
	7				0.07							0.86 0.75	0.05				
	8											0.15	0.73 0.88				
	9										0.05			0.86 0.75			
	10														0		
	11															0.95 0.71	
	12						0.04 0.13					0.06				0.16	0.83 0.89
Total Number of Examples on Criterion Tape		4	20	5	26	3	8	11	1	7	16	11	2	9	1	3	23

*Sources of error less than three percent are not included on this table.

FIGURE 14 PROPORTION OF WHAT CODES RECORDED IN EACH CELL, CALCULATED OVER* 63 OBSERVERS

The next lowest in reliability was Code 4, "instruction, explanation." Observers recorded what should have been Code 12, "observing, listening," as Code 4 11% of the time. Since 4 is verbal and 12 is nonverbal, the problem would not appear to be one of confusion of what is occurring but, rather, confusion of which person to focus upon. This conclusion is based on the fact that both of these codes generally occur simultaneously (that is, when a teacher is instructing, coded 4, the children are usually attending or listening, coded as 12). Apparently the observers were confused as to which person to record. As can be seen in Figure 14, in the Code 12 row, a true example of Code 4 was sometimes confused and recorded as Code 12, which is a further indication that the instructions regarding the focus of observation were not clearly understood by observers.

Code 4NV, "nonverbal instruction," describes a child instructing himself. Observers recorded this reliably 88% of the time. They sometimes confused 4NV with what was truly a 5NV, a code that describes "nonverbal general action or play." Looking down the 4NV column, it can be seen that 15% of the videotaped examples were recorded as 5NV. This confusion of 4NV and 5NV indicates an overlap of definitions (or a conceptual difficulty in distinguishing "work" from "play").

Criterion examples of Code 7, "acknowledge," were sometimes coded as 6 or 12. Code 7 is sometimes confused with Code 3, "response" (see Row 7 in Figure 14). It is easy to see how acknowledging a child can be confused with responding to a child. On the other hand, Code 3, "response," was one of the more reliable codes. It was not confused with Code 7 (see Figure 14). In fact, the observers recorded it correctly 91% of the time, and Column 3 indicates that 5% of the criterion examples were coded as 6.

Of the recorded instances of Code 1Q, "direct question," 11% should have been Code 2, "open-ended question." The confusion between Codes 1Q and 2 has long been recognized by the SRI researchers. Each year the variables have been defined more carefully; however, there still seems to be a gray area of unclarity between the two codes. Code 2, which has too few examples to analyze with confidence, was also confused with 1Q. The results of individual observers were examined, and apparently those observers who observed classroom models that do not often require the 2 code had a higher rate of error.

The observers recorded 9, "corrective feedback," correctly 86% of the time; 5% of the time, Code 6 was recorded as 9 (see Row 9, the upper value). The criterion examples, as illustrated in Column 9 (the lower value) were sometimes coded as 1, 1Q, and 6.

b. Findings for How Code Confusions

A How code is not always required. This rule leads to four distinct possibilities:

- A required How was left out of the frame (omission). (These are listed at the bottom of Figure 15.)

- A How code was recorded when not called for (intrusion). (These are listed in the last column of Figure 15.)

- The criterion How code was confused with another code. (These are entered in other than the diagonal cells.)

- The criterion How code was recorded accurately. (These are entered in the diagonal cells.)

Only six of the 14 How codes (including the What code modifiers, NV and X) were represented by six or more examples on the videotapes. These are NV, X, A, B, DP, and O (see Figure 15). (Codes with five or fewer examples will not be discussed.) As described earlier, the upper value in a cell reports the percent of observer accuracy. The lower value in the cell reports the percent of the videotaped examples which were correctly recorded.

The nonverbal code, NV, was recorded correctly 93% of the time by observers; and, overall, the observers omitted only 13% of the criterion examples. Code X, "movement," was also found to be reasonably reliable. The observer recorded it correctly 89% of the time, although 20% of the examples were omitted by observers.

Observers recorded the A code, "academic," correctly 81% of the time. Of the A codes recorded, 4% should have been Code B, and 15% of the A codes were actually intrusions. Also, 76% of the videotaped examples were recorded correctly, and 21% were omitted.

While 95% of the examples recorded as Code B by the observer were correct (see Row B), 43% of the B codes were omitted and 13% of the examples of Code B were incorrectly recorded as Code A. This leads to the conclusion that if a B code is recorded, it is likely to be correct, but the total number of B codes may be underestimated by over 50%. An examination of each observer's work is important in order to discover the source of the underestimation. It is possible that only a few observers are grossly underestimating the incidence of B codes, or it could be that many of the 63 observers are underestimating B codes to only a small degree.

The two remaining codes with six or more examples (DP, "dramatic play, pretending" and O, "object") were recorded accurately over 80% of the time, but both codes were underestimated (43% and 33% of the time, respectively).

	How Codes	Criterion Examples (Lower Numbers in Cells)														Proportion of Intrusions
		NV	X	A	B	DP	W	O	P	G	Q	T	N	U	H	
Codes as Recorded by Observers (Upper Numbers in Cells by Row)	NV	0.93 0.86														0.07
	X		0.89 0.81													0.10
	A			0.81 0.76	0.04 0.13											0.15
	B				0.95 0.43											0.05
	DP					0.84 0.55										0.15
	W						0.79 0.61									0.16
	O							0.81 0.66								0.18
	P								0.0							0.0
	G									0.13 0.33	0.13 0.16		0.20 0.19			0.51
	Q										0.87 0.75					0.10
	T											0.68 0.68				0.31
	N												0.40 0.43	0.03		0.53
	U												0.03	0.70 0.40	0.03	0.23
	H														0.63 0.45	0.35
Proportion of Omissions		0.13	0.20	0.21	0.43	0.43	0.39	0.33	0.0	0.66	0.10	0.32	0.33	0.56	0.52	
Total Number of Examples on Criterion Tapes		26	6	40	13	9	2	8	0	1	2	3	3	4	2	

FIGURE 15 PROPORTION OF HOW CODES RECORDED IN EACH CELL, CALCULATED OVER 63 OBSERVERS

5. Summary

The results of the confusability study identify the specific codes that appear to be reliable as well as those that are confused and need to be redefined. The findings suggest that some codes, such as 6, 4NV, and 5NV, should be more carefully defined because of overlapping definitions. There is some indication that there should be more careful training of observers on the focus of observation so that Code 4 and Code 12 will not be confused. The overall reliability for all observers on the What codes was 78% and 81% for the How codes.

D. Observer Reliability

1. Accuracy of Individual Observers

The value of this new method for measuring accuracy is that it contributes directly toward interpreting the data. Observer bias can be assessed by examining the overuse, underuse, or confusion of codes. In this study, each observer was responsible for observing one grade level at a single site. Therefore, the data collected by each observer are identifiable in the analysis.

In order to determine the accuracy rates for each observer separately, tables were constructed that graphically present, by sponsor, each observer's results (see Table 7). Thus, for example, if an observer in Grade 1 at Site X had difficulty with Code 7, "acknowledge," it is possible to compute the site mean of Code 7 and compare it with the first grade means of Code 7 at the four other sites of the sponsor. If the means of the four sites (not in question) are similar and the mean of the site in question differs from the other four, there are two possible explanations: (1) Site X may indeed differ from the other four sites, or (2) the observer at Site X may not be recording accurately. In any case, the data resulting from Code 7 at Site X would be interpreted with caution. This procedure allows for each observer's data to be reviewed in order to estimate the accuracy of the individual on each code and to allow for the data to be interpreted accordingly.

As an example, Table 7 shows the observer accuracy rate (the first number) and the criterion accuracy rate (the second number) for each of the Far West observers for each code. In addition, an overall accuracy rate for each observer on all What and How codes has been computed and displayed on this table to provide a general idea of the

Table 7

ACCURACY RATES* FOR THE WHAT AND HOW CODES BY OBSERVERS AT FAR WEST SITES

A. What Codes

Site and Grade	Codes with Six or More Criterion Instances									Codes with Five or Fewer Criterion Instances						Overall Accuracy Rate
	1Q	3	4	4NV	5NV	6	7	9	12	1	2	3NV	5	8	11	
0201 Berkeley																
First Grade	.84/.80	.96/.89	.62/.89	.82/.90	1.0/.50	.93/1.0	.90/.82	.86/.75	.94/.81	1.0/1.0	.57/.80	.50/1.0	0.0/0.0	.67/1.0	1.0/1.0	.84
Third Grade	.81/.81	1.0/.96	1.0/.38	1.0/.46	.50/.88	1.0/.81	.90/.82	.73/1.0	.82/.96	.05/.25	.60/.60	.75/1.0	.50/1.0	.67/1.0	1.0/1.0	.83
0204 Duluth																
First Grade	.86/.70	.96/.84	.86/.75	.83/.91	.71/.71	.62/.47	.86/.75	.71/.63	.92/.96	.75/.75	.60/.60	1.0/1.0	.09/1.0	.50/1.0	1.0/1.0	.78
Third Grade	.67/.60	.79/.76	.67/.67	.67/.67	.80/.67	.33/.29	.60/.67	.71/.63	.94/.80	.50/.50	.43/.60	.50/.50	.20/1.0	.50/.50	1.0/.67	.64
0207 Lebanon																
First Grade	.92/.57	.81/1.0	.71/.83	1.0/.82	.75/.86	.77/.77	.88/.70	.83/.83	.91/.96	1.0/.25	.36/.80	.80/1.0	0.0/0.0	1.0/1.0	1.0/1.0	.81
Third Grade	.94/.81	.96/.81	.78/.88	.79/1.0	.86/.75	.75/.69	1.0/.70	.86/.88	.87/.91	1.0/.67	.50/.60	1.0/1.0	.14/1.0	.67/1.0	1.0/1.0	.83
0209 Salt Lake City																
First Grade	.80/.76	.92/.92	.83/.63	1.0/.70	.44/.57	1.0/.29	.90/.82	.67/1.0	.75/.91	.75/.75	.50/.40	.75/.75	.10/1.0	.50/1.0	1.0/.33	.74
Third Grade	.78/.70	1.0/.89	1.0/.71	.92/1.0	1.0/.83	.75/.56	.90/.90	1.0/.63	.79/1.0	1.0/1.0	.38/.60	1.0/1.0	.13/.33	.67/1.0	1.0/.50	.81
0213 Tacoma																
First Grade	.75/.79	.95/.80	.54/.78	1.0/.7[illegible]	.89/1.0	.79/.94	.86/.60	1.0/.89	.76/.96	.60/.75	.43/.60	0.0/0.0	0.0/0.0	1.0/1.0	0.0/0.0	.79
Third Grade	.95/.73	.92/.73	.75/1.0	.83/.70	1.0/.50	.58/.82	.73/.80	1.0/1.0	.93/.93	1.0/.50	.36/.30	0.0/0.0	.25/1.0	1.0/1.0	1.0/1.0	.79

B. How Codes

Site and Grade	Codes with Six or More Criterion Instances						Codes with Five or Fewer Criterion Instances							Overall Accuracy Rate
	NV	X	A	B	LP	O	W	G	Q	T	N	U	H	
0201 Berkeley														
First Grade	1.0/.85	1.0/.80	.67/.90	1.0/.70	1.0/.67	1.0/.67	.67/1.0	0.0/0.0	1.0/.50	1.0/.50	.14/.50	1.0/.50	.50/1.0	.74/.78
Third Grade	.89/.96	.83/.83	.82/.78	.88/.54	1.0/.78	1.0/.25	.67/1.0	.25/1.0	1.0/.50	1.0/.67	.50/.50	.50/.25	1.0/.67	.83/.73
0204 Duluth														
First Grade	.93/.96	.67/1.0	.66/1.0	1.0/.50	.88/1.0	.88/1.0	.50/.50	0.0/0.0	1.0/.50	.75/1.0	0.0/0.0	1.0/.25	.50/.50	.74/.85
Third Grade	.83/.64	.83/.63	.66/.84	1.0/.50	0.0/0.0	0.0/0.0	.50/1.0	0.0/0.0	0.0/0.0	1.0/.67	.25/.33	0.0/0.0	.20/.50	.67/.56
0207 Lebanon														
First Grade	1.0/.96	1.0/.67	.89/.69	0.0/0.0	0.0/0.0	.88/.88	1.0/.50	0.0/0.0	1.0/1.0	1.0/.33	1.0/1.0	1.0/1.0	1.0/.50	.92/.64
Third Grade	.96/.93	1.0/.83	.89/.67	.92/.69	1.0/.71	.88/.88	1.0/1.0	0.0/0.0	1.0/1.0	.50/.50	.33/.67	1.0/.75	1.0/.50	.88/.76
0209 Salt Lake City														
First Grade	.84/.91	.80/.80	.82/.97	.86/.46	.75/1.0	.75/.43	.17/1.0	.25/1.0	1.0/1.0	.67/.67	.38/1.0	.33/.33	0.0/0.0	.71/.81
Third Grade	1.0/.96	1.0/1.0	.70/.97	.33/.08	.78/.88	1.0/1.0	.50/1.0	.50/1.0	1.0/1.0	.67/.67	.33/.33	.25/.33	.25/.50	.75/.81
0213 Tacoma														
First Grade	1.0/.85	1.0/1.0	.90/.77	1.0/.31	.67/.67	.22/.25	1.0/1.0	0.0/0.0	1.0/.50	1.0/.67	.50/.33	1.0/.50	1.0/.50	.82/.67
Third Grade	1.0/.56	1.0/1.0	.83/.51	1.0/.42	.82/1.0	1.0/.50	0.0/0.0	.67/1.0	1.0/1.0	.67/.67	.50/.67	1.0/.33	1.0/.50	.87/.59

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*Accuracy rate (proportion correct of the total recorded) is given first and criterion accuracy rate (proportion of times the criterion instances were recorded correctly) is given second.

Source: SRI

observer's skill.* The results are grouped by grade level and site. Similar tables for the other six sponsors in the evaluation were prepared (see Appendix L). The complete confusability matrix of all observers is not included in this report but is available at SRI.

As indicated earlier, five or fewer criterion examples of a code minimize the confidence with which the actual results can be utilized. Therefore, only codes with six or more examples are considered in the analysis of specific grade levels within a site.

As an illustration of how Table 7 can be used, the results of the first observers listed are discussed. The observers are grouped according to the site or project they observed. Going from left to right, the What codes are first shown on the extreme left with the codes which are represented by six or more criterion instances. The next section includes the What codes that were represented by five or fewer instances. The How codes are shown next, with a similar division.

a. Findings from What Codes Occurring Six or More Times

The first observer listed, Observer for Grade 1 from Berkeley had an overall reliability rate of .84 on the What codes (see Table 7). Of the nine codes with six or more criterion instances, only two codes registered an observer accuracy or criterion accuracy rate of less than .75. Looking at Code 4, "instruction, explanation," we see an observer accuracy rate of .62 and a criterion accuracy rate of .89. This means that when Observer for Grade 1 recorded Code 4, it was correct 62% of the time. The observer actually recorded a Code 4 some 89% of the time; thus, she missed only 11% of the examples. However, 38% of the time when she recorded 4 codes she was incorrect. Therefore, variables using the 4 code in the first grade at Berkeley should be interpreted with caution.

The other code which the observer's results show to be considered less than adequate was the 5NV code, "nonverbal general action or play." The observer accuracy rate of 1.00 shows that when she recorded a 5NV it was always a 5NV--she did not confuse it. However, she failed to code 50% of the videotape examples of 5NV.

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*The overall accuracy rate is arrived at by computing the ratio of correct recordings (those that fall in the diagonal cells) of all codes to the total number of recorded codes and to the total number of criterion instances of the codes. For the What codes, the two ratios are the same since the total number of recorded codes is equal to the total number of criterion instances. Two ratios are required for the How codes since observers are not required to record a How code in each frame which leads to differences between the total numbers of criterion examples and total numbers of recorded codes.

The overall results for Observer for Grade 1 show that the observation data she gathered can be analyzed with a great deal of confidence. Only the results for the 4 and 5NV codes must be analyzed with special caution.

Three of the other first grade observers for this sponsor registered observer accuracy rates of over .70 on the 4 code. The first grade observer at Tacoma has an observer accuracy rate of only .54. If the results of the data collection show that Grade 1 at Berkeley and Tacoma have means and standard deviations for Code 4 that differ widely from those at the other sites, it may be explained by the observers' confusion in the use of the 4 code.

A similar situation exists with the data for three of the four other first-grade observers on the videotape examples of the 5NV code. The underestimation of the code by Observer for Grade 1 at Berkeley is not common to all first grade observers. Therefore, this should be taken into consideration when the data are analyzed.

b. Findings from How Codes Occurring Six or More Times

It can be seen on Table 7 that Observer for Grade 1 at Berkeley was 100% accurate when she recorded five of the more frequent How codes. The one coding exception is A, "academic." Only 67% of the time were her A codings correct; 33% of the time they should not have been coded as A. However, she recorded 90% of the occurrences of Code A on the videotape. The extra 33% that she recorded are considered intrusions,* and they overestimate the occurrence of this code. Observers at other sites had their own specific difficulties, and their data will have to be analyzed in the same way that the data of Observer for Grade 1 at Berkeley have been analyzed.

c. Summary

The usefulness of this method of measuring the accuracy of individual observers lies in its capacity to:

- Differentiate codes according to relatively high or low levels of confidence;
- Assess an individual's coding skill on a specific code and examine observer bias;
- Compare individual observer's scores with other observer's scores at the sponsor's same grade level.

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*See page 75 for an explanation of intrusion.

By thus identifying the various sources of error in the observation measures, we can more accurately determine whether specific problems lie in the code itself or with the individual observer and thus interpret the data according to observer bias.

2. A Study Comparing Accuracy Between Observers and Videotape Simulation Accuracy

The preceding section has examined the confusability of the observation codes and the ability of observers to code criterion videotapes. Videotaped simulation of classroom events are, admittedly, different from actual classroom events. In an effort to compare the accuracy of observer ratings on the simulations and accuracy between raters in classrooms, a small study was conducted in one location. This section compares the results obtained from both studies of accuracy for two observers.

a. Paired Observers

The first method, the paired observation, is the most commonly used method of assessing interaction analysis instruments. The procedure followed is to have the two observers (generally a trainer and qualified observer) situated in the same classroom, coding exactly the same situation simultaneously. The recorded codes are then evaluated in terms of percent agreement between the two observers. Since the speed of the two observers is not expected to be consistent, the ratio of the number of codes recorded by the observer is compared to the ratio of the number of codes recorded by the trainer.

It must be pointed out that this paired observation procedure has some serious limitations. First, two extra people in the classroom are more obtrusive than one. Second, it is almost impossible to assure that the two observers are focusing on exactly the same action. Due to limited space, the two observers may not have the same angle of observation; thus, what they see and hear may be somewhat different and yet each observer could be collecting a correct and adequate sample of the behavior that is occurring. A third problem is that even if the marginal frequency counts of a code by two observers are numerically similar, we cannot be certain that the two observers have recorded specific incidents exactly the same. Similar ratios could occur by chance. Finally, it happens that during the classroom observations certain interactions or codes do not occur, or occur at such a minimal rate that reliability cannot be computed. There is no way to be certain that all codes will be assessed within a given time period.

In this study, data from sixteen 5-minute observations were examined, using three Who codes, twelve What codes, and thirteen How codes. (Codes Q and P were excluded because each occurred only once.) Two different observers (referred to as Observer 1 and Observer

2) were analyzed. To assess the coding accuracy of the two observers, the proportion of frames that contained a particular code was recorded for each trainer and observer. From the proportions, the following equation was computed for each code (z is for the trainer and y is for a given observer on a given code):

$$\text{The percent agreement} = 100 \times \frac{\min (y, z)^*}{\max (y, z)}$$

Tables 8 and 9 show the overall percentage reliability of the codes separately, in terms of their ratio of frequency. It must be noted that accuracy for low-frequency variables is difficult to interpret because if the trainer records an event four times and the observer only two times and they observe an equal number of frames, the agreement is only 50%, even though the actual difference is only two occurrences. Higher-frequency variables can tolerate a difference of two occurrences and still show a high percentage of agreement. The data for each observer are presented separately in Tables 8 and 9 . Since there are sixteen paired observations, it is possible to have as many as 1,216 frames of interaction. Therefore, we have separated the data into three categories: least frequent, moderately frequent, and most frequent. Table 10 is included to further clarify the results of the paired observations. It includes the frequency scores of the SRI trainer as well as the ratios of occurrence and percent agreement scores for both observers over all codes.

The results show that both of the observers were very reliable on the Who codes. The What codes were also recorded very reliably, with only two exceptions. Observer 1 recorded less than half as many 8 codes, "praise," as the trainer, and Observer 2 missed nearly 80% of the occurrences of Code 6, "task-related statement." Significantly, however, both of these codes occurred with low frequency.

The results on the How codes were much lower. Observer 1 was quite reliable on the NV, "nonverbal," G, "guide to alternative," A, "academic," and B, "behavior" codes. She was below the 50% agreement rate for the X, "movement," H, "happy," N, "negative," and O, "object" codes. The remaining codes occurred less than ten times according to the trainer's score and, therefore, no accuracy rate could be arrived at.

Observer 2's rate of accuracy was similar on the How codes. She was reliable on the NV, X, and A codes and below the 50% level on the Q, G, H, and B codes. Seven of the How codes occurred

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*When z = 0 and y = 0, the percent agreement is assigned a value of 100.

Table 8

PERCENT AGREEMENT BETWEEN TRAINER AND OBSERVER 1

A. Who Codes

Percent Agreement	Least Frequent (0-60)	Moderately Frequent (61-175)	Most Frequent (176-1,216)	Total No. of Codes
91-100			Adult, Child	2
81-90	Machine			1
71-80				0
61-70				0
51-60				0
41-50				0
			Total	3

B. What Codes

Percent Agreement	Least Frequent (0-60)	Moderately Frequent (61-175)	Most Frequent (176-1,216)	Total No. of Codes
91-100	10		4	2
81-90		1Q, 6	1, 3, 12	5
71-80	11			1
61-70		5, 9		2
51-60	7			1
41-50	8			1
			Total	12

C. How Codes

Percent Agreement	Least Frequent (0-60)	Moderately Frequent (61-175)	Most Frequent (176-1,216)	Total No. of Codes
91-100	U, G, DP		A	4
81-90				0
71-80			NV	1
61-70		B		1
51-60				0
41-50	X			1
31-40	T			1
21-30				0
11-20	Q	H		2
0-10	N, O, W			3
			Total	13

Table 9

PERCENT AGREEMENT BETWEEN TRAINER AND OBSERVER 2

A. Who Codes

Percent Agreement	Least Frequent (0-60)	Moderately Frequent (61-175)	Most Frequent (176-1,216)	Total No. of Codes
91-100			Adult, Child	2
81-90				0
71-80				0
61-70				0
51-60				0
41-50				0
			Total	2

B. What Codes

Percent Agreement	Least Frequent (0-60)	Moderately Frequent (61-175)	Most Frequent (176-1,216)	Total No. of Codes
91-100	8		5	2
81-90			3	1
71-80		4, 7	10	3
61-70	10		12	2
51-60		9	1	2
41-50				0
31-40				0
21-30				0
11-20	6			1
			Total	11

C. How Codes

Percent Agreement	Least Frequent (0-60)	Moderately Frequent (61-175)	Most Frequent (176-1,216)	Total No. of Codes
91-100	DP		A	2
81-90				0
71-80			NV	1
61-70				0
51-60	X			1
41-50				0
31-40	T			1
21-30	H, U, Q, G			4
11-20		B		1
0-10	N, O, W			3
			Total	13

Table 10

RESULTS OF PAIRED OBSERVATIONS

	Observer 1				Observer 2			
	Percent Agreement	Observer Ratio	Trainer Ratio	Trainer Score	Percent Agreement	Observer Ratio	Trainer Ratio	Trainer Score
Who Codes								
Adult	97%	.482	.467	502	94%	.544	.578	638
Child	96	.488	.506	544	98	.431	.423	467
Machine	82	.023	.028	30*	--	.026	.000	0*
(Total frequency		1,160	1,076	1,076)		990	1,105	1,105
What Codes								
1	88%	.171	.150	161	60%	.174	.104	115
1Q	90	.103	.093	100	73	.106	.145	160
2	--*	.000	.001	1*	--*	.001	.000	0*
3	88	.212	.242	260	89	.288	.257	283
4	99	.150	.151	162	77	.091	.070	77
5	65	.086	.056	60	92	.091	.099	109
6	81	.069	.056	60	17*	.006	.035	38*
7	56*	.020	.036	38*	75*	.039	.052	57*
8	44*	.007	.016	17*	100*	.022	.022	24*
9	65	.042	.065	69	55	.038	.069	76
10	93*	.013	.014	15*	65	.031	.020	22*
11	75*	.003	.004	4*	--*	.020	.000	0*
12	83	.121	.100	107	70	.087	.124	137
NV	73%	.239	.174	187	71%	.144	.203	224
X	43	.053	.023	23*	51*	.021	.041	45*
How Codes								
H	11	.006	.057	61	22*	.004	.018	20*
U	100*	.000	.000	0*	25*	.016	.004	4*
N	8*	.001	.012	13*	0*	.000	.009	10*
T	33*	.003	.009	9*	33*	.003	.009	9*
Q	11*	.001	.009	9*	23*	.005	.022	24*
G	100*	.033	.033	35*	29*	.008	.028	31*
P	--*	.000	.001	1*	--*	.002	.000	0*
O	0*	.000	.016	17*	--*	.000	.001	1*
W	0*	.000	.007	7*	--*	.000	.002	2*
DP	100*	.000	.000	0*	100*	.000	.000	0*
A	94	.760	.713	767	93	.670	.622	687
B	62*	.018	.029	31*	16*	.008	.051	56*

Note: Ratio here means the occurrence of a specific code divided by the total number of frames recorded.

*Fewer than 60 criterion instances.

only ten or fewer times, thus generalizations regarding these codes' would be made with caution.*

b. Videotaped Skits (Simulations)

The second phase of the reliability study was based on the previously described videotaped skits. The same procedure was followed, having the two observers code interactions seen on the videotape and comparing that record with the predetermined criteria. The tape has stops or pauses between each interaction to ensure that each observer knows which interaction to code. The procedures are repeated here for purposes of clarification.

The results were compiled for both observers. They reveal both (1) which occurrences were not recorded, and (2) which codes were erroneously recorded. The procedure allowed us to identify the problem codes for each specific observer.

In the figures that follow, two values are shown in each cell. For those cells that fall on the main diagonal, the upper value shows the percent of times the total number of codes recorded was correct. The lower value shows the percent of times the code actually occurred and was recorded correctly by the observer.

For cells that do not fall on the diagonal, the two values indicate proportions of error rather than of accuracy. The upper value shows the percent of times a specific code (as shown by row indicator) was recorded instead of a specific criterion code (indicated by the column) to the total number of recordings of that code. The lower value indicates the percent of times that the specific code (indicated by the row) was recorded when a given criterion code was called for (shown by the column).

Figures 16-19 are matrices showing the percent of accuracy and the percent of the total codes recorded for the two observers. Computations are for the What and the How codes. The total number of criterion instances of each code is shown at the bottom of each column. The total number that the observer recorded is given at the end of each row.

Those codes that occurred five or fewer times are listed in the matrices but will not be discussed in the body of this text. A decision was made that, in these cases, the confidence level with which we might make predictions as to the reliability of an observer would be so low as to render it unacceptable. Therefore, only the codes which were tested by six or more criterion examples will be considered in this analysis.

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*This study of inter-rater reliability would be more useful if it had also examined the day-to-day variability of the classroom so that the error due to observers and the error due to varying classroom processes could have been computed.

As shown in Figure 16, the What matrix for Observer 1 indicates that, of the nine codes that included six or more criterion instances, only the 4NV code, "nonverbal instruction," the 5NV code, "nonverbal general action or play," and the 6 code, "task-related statement" had a criterion accuracy lower than .70. In the 6 code, 80% of the recorded 6 codes were correct, but 69% of the criterion codes were missed. Moving up the 6 column we can see that 54% of the criterion 6 codes were incorrectly coded as 5. The problem with the 5NV code is somewhat different. In this case the problem is that both the criterion rate and the observer correctness were low. It appears that on the simulations Observer 1 had difficulty distinguishing the 5NV code from the 4NV, "nonverbal instruction" code, since she often coded the criterion 4NV instances as 5NV and also the 5NV criterion as 4NV.

Over all What codes, Observer 1 is reasonably accurate with a criterion rate of .76 which is average for all 63 observers examined by the videotapes on the What codes.*

Observer 2 had a reasonable overall criterion accuracy rate (.70) also, but she had coding problems with several codes (see Figure 17). She did not record the 4 code, "instruction, explanation" 56% of the time. The 4NV, 6, 7, and 9 codes were also coded less frequently than required. She used the 12 code, "observing, listening" eight more times than required, where she should have used codes 3, 4, and 7.

The How code accuracy for Observer 1 was also acceptable (see Figure 18). Her overall criterion accuracy rate was .78. This figure indicates that of the 111 criterion How codes presented, she recorded 87 correctly (see lower right-hand corner of Figure 18). The only How code that Observer 1 recorded with less than 70% accuracy was the O code, "object;" 50% were missed and 64% were recorded when not indicated. The other codes that fell below a .70 rate of accuracy were codes that included five or fewer criterion instances.

Observer 2 had a more difficult time recording the How codes from the tapes. In Figure 19 her overall accuracy rate is shown as only .56. On individual codes, the O was very reliable (1.00/.86), but the NV was not used 41% of the times when it should have been. The A, "academic" was coded when not called for sixteen times and omitted

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*This figure is computed by dividing the total number of correct entries by the exact number of videotaped criterion examples.

	What Codes	Criterion Examples (Lower Numbers in Cells)																Total Entries	Total Correct Entries
		1	1Q	2	3	3NV	4	4NV	5	5NV	6	7	8	9	11	12			
Codes (Upper Numbers in Cells)	1	0.67 0.50							0.33 1.00									3	2
	1Q	0.08 0.50	0.72 0.86	0.20 1.00														25	18
	2			0.00 0.00														0	0
	3				0.96 0.89		0.04 0.10											24	23
	3NV					1.00 1.00												4	4
	4		0.13 0.05				0.88 0.70											8	7
	4NV							0.33 0.33		0.67 0.33								6	2
	5				0.13 0.04				0.00 0.00		0.88 0.54							8	0
	5NV							0.36 0.67		0.64 0.58								11	7
	6		0.20 0.05								0.80 0.31							5	4
	7				0.18 0.08							0.82 0.90						11	9
	8												1.00 1.00					2	2
	9										0.10 0.08			0.90 1.00				10	9
	11														1.00 1.00			2	2
	12		0.03 0.05				0.07 0.20			0.03 0.08	0.03 0.08	0.03 0.10				0.79 1.00		29	23
																		↓	112
Total Number of Examples on Criterion Tapes		4	21	5	26	4	10	6	1	12	13	10	2	9	2	23 →		148	(76% accuracy rate)

FIGURE 16 PROPORTIONAL DISTRIBUTION OF WHAT CODES FOR OBSERVER 1 FOR BOTH RECORDED AND CRITERION ACCURACY

	What Codes	Criterion Examples (Lower Numbers in Cells)																Total Entries	Total Correct Entries
		1	1Q	2	3	3NV	4	4NV	5	5NV	6	7	8	9	11	12			
Codes (Upper Numbers in Cells)	1	0.22 0.50	0.44 0.27	0.11 0.20										0.22 0.22				9	2
	1Q	0.08 0.25	0.85 0.73	0.08 0.20														13	11
	2,			1.00 0.40														2	2
	3				0.89 0.82	0.04 0.33					0.08 0.15							26	23
	3NV					1.00 0.67												2	- 2
	4				0.20 0.04		0.80 0.44											5	4
	4NV							0.80 0.40			0.20 0.08							5	4
	5	0.14 0.25						0.43 0.30	0.00 0.00		0.29 0.15			0.14 0.11				7	0
	5NV							0.25 0.30		0.75 1.00								12	9
	6			0.07 0.20	0.14 0.07						0.57 0.62	0.07 0.10				0.14 0.09		14	8
	7											0.75 0.60	0.25 1.00					8	6
	8												0.00 0.00					0	0
	9													1.00 0.67				6	6
	11														1.00 1.00			3	3
	12				0.07 0.07		0.17 0.56					0.10 0.30				0.67 0.91		30	20
																		↓	100
Total Number of Examples on Criterion Tapes		4	15	5	28	3	9	10	0	9	13	10	2	9	3	22 →		142	(70% accuracy rate)

FIGURE 17 PROPORTIONAL DISTRIBUTION OF WHAT CODES FOR OBSERVER 2 FOR BOTH RECORDED AND CRITERION ACCURACY

	How Codes	Criterion Examples (Lower Numbers in Cells)																Total Entries	Total Correct Entries
		NV	X	A	B	DP	W	O	P	G	Q	T	N	U	H	Propn of Intru			
Codes (Upper Numbers in Cells)	NV	0.96 0.89														0.04 0.05		25	24
	X		0.80 0.80													0.20 0.05		5	4
	A			0.94 0.92												0.06 0.10		36	34
	B				0.90 0.75											0.10 0.05		10	9
	DP					0.86 1.00										0.14 0.05		7	6
	W						0.50 0.50									0.50 0.05		2	1
	O							0.36 0.50								0.64 0.33		11	4
	P								0.00 0.00							1.00 0.05		1	0
	G									0.14 1.00	0.14 0.50		0.14 0.50			0.57 0.19		7	1
	Q										0.50 0.50					0.50 0.05		2	1
	T											1.00 0.33						1	1
	N												0.00 0.00			1.00 0.05		1	0
	U													1.00 0.25				1	1
	H														1.00 0.50			1	1
	Propn of Omissions	0.14 0.11	0.05 0.20	0.14 0.08	0.14 0.25		0.05 0.50	0.18 0.50				0.09 0.67	0.05 0.50	0.14 0.75	0.05 0.50	0.00 0.00		110	87
																			(78% accuracy rate)
Total Number of Examples on Criterion Tapes		27	5	37	12	6	2	8	0	1	2	3	2	4	2 ⟶		111		

FIGURE 18 PROPORTIONAL DISTRIBUTION OF HOW CODES FOR OBSERVER 1 FOR BOTH RECORDED AND CRITERION ACCURACY

	How Codes	Criterion Examples (Lower Numbers in Cells)																Total Entries	Total Correct Entries
		NV	X	A	B	DP	W	O	P	G	Q	T	N	U	H	Propn of Intru			
Codes (Upper Numbers in Cells)	NV	0.94 0.59														0.06 0.04		17	16
	X		1.00 0.83															5	5
	A			0.63 0.77	0.07 0.23											0.30 0.52		43	27
	B				0.00 0.00													0	0
	DP					0.00 0.00												0	0
	W						0.00 0.00											0	0
	O							1.00 0.86										6	6
	P								0.00 0.00							1.00 0.40		10	0
	G									0.00 0.00			0.50 1.00			0.50 0.04		2	0
	Q										1.00 0.50							1	1
	T											1.00 1.00						2	2
	N												0.00 0.00					0	0
	U													1.00 0.50				2	2
	H														1.00 0.50			1	1
	Propn of Omissions	0.25 0.41	0.02 0.17	0.18 0.23	0.23 0.77	0.16 1.00	0.05 1.00	0.02 0.14			0.02 0.50			0.05 0.50	0.02 0.50	0.00 0.00		89	60 (56% accuracy rate)
Total Number of Examples on Criterion Tapes		27	6	35	13	7	2	7	0	0	2	2	1	4	2 →		108		

FIGURE 19 PROPORTIONAL DISTRIBUTION OF HOW CODES FOR OBSERVER 2 FOR BOTH RECORDFD AND CRITERION ACCURACY

eight times when it should have been coded. Codes B, "behavior" and DP, "dramatic play, pretending" were ignored completely.

c. Summary

Two distinct procedures, the videotaped skits and the paired observations, were used to assess the accuracy of two observers. The results indicate average reliability for both observers on the What code category. For the How category, Observer 1 is above average, but Observer 2 is below the average of the other 62 observers.

Specifically, Observer 1 was acceptably accurate on the more frequently used individual codes. Many of her codes, such as 1Q, 3, 4, 7, 9, 12, NV, A, and B were shown to be very reliable on both procedures. Only Code O, "objects" was shown to be unreliable on both procedures.

The results were equally good for Observer 2 on the What codes with only Code 6, "task-related statement" being shown to be unreliable on both procedures. The How Code B, "behavior" was also recorded poorly in both procedures. In the case of the videotape codings, Observer 2 missed the 13 examples of Code B and underestimated it in the paired observations. On Code A, "academic," Observer 2 was 93% accurate on the paired observations but had a .63/.77 reliability on the videotapes. Other How codes such as "movement" and "object" are acceptably accurate on the videotapes while "nonverbal" is acceptably accurate on the paired observations. "Guide" and "question," which were underestimated in the paired observer analysis, have too few examples on the videotape to be discussed in terms of reliability.

While simulated videotaped events are limited in their scope and differ from the classroom situation, they do offer a standard stimulus to examine each observer's ability to code specified events and to identify observer bias. There is still some confounding in the source of system error; however, the variation introduced by a second observer is eliminated. While the two systems of examining observer accuracy do yield some different information, it is not contradictory, and the videotape system is far easier to control and interpret.

E. Conclusions

The study indicates that the observation data collection was reasonably uniform. Unacceptable data (e.g., anomalous classroom events, or FMOs with too few interaction frames) were discarded.

Day-to-day classroom procedures appear to be stable enough to support the analysis used in this report. When all classrooms were combined and Day 1 was compared with Day 2, only one variable in the third grade fell below .70 reliability. This was the occurrence of

Variable 66 (Numbers, math, arithmetic). The stability of the means of all classrooms is important to the partial correlation and regression analysis presented in Chapter VII since all classrooms are used to investigate the relationship of instructional processes and child outcomes. Of the 140 coefficients that were computed for individual sponsors, approximately 84% had a value of .70 or more. High/Scope had the least variability of all sponsors while University of Kansas had reliability lower than .70 on more variables than other sponsors. Counter to common belief the more structured models were not more stable in classroom processes from Day 1 to Day 2. Each sponsor had some variables which are not stable and interpretation of such variables that are critical to implementation should be interpreted with consideration of the instability.

While there appears to be an overlap in the definition of some codes, the source of unreliability can be isolated to a particular observer. Hence, data has been interpreted with the observer's limitation in mind.* When coding the videotapes, the overall reliability for all observers was .78 on the What codes, and .81 on the How codes recorded.** However, as previously stated this method of assessing reliability is limited. A carefully designed study of observer reliability is needed where several pairs of observers code in classrooms on different days to examine what portion of the error is due to observer bias and what portion is due to day-to-day variability within classroom processes themselves. From such a study we might be able to learn how many observations are needed in a classroom to obtain a reliable description of the procedures.

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*Interpretation of each observer's effect upon the data collected is reported at the end of each sponsor's section in Chapter V.

**Six of the 15 What codes and eight out of 14 How codes were not included in this analysis because there were too few examples on the videotaped simulations.

Chapter V

ASSESSMENT OF IMPLEMENTATION

The purpose of Chapter V is to assess the degree of implementation of seven sponsors. The study of implementation compares observed classroom processes with specific sponsor goals. No completely satisfactory way to approach this issue has presented itself, since the Follow Through programs were not originally operationalized in terms of variables defined on SRI's classroom observation schedule. This problem has been partially overcome by constant consultation with the program's sponsors during the creation of the variables. Also, each sponsor selected his own set of variables which will reflect some of the critical components of his model. Implementation will be judged by two criteria: (1) the uniformity of sponsor classroom scores on selected implementation variables and (2) how the sponsor classrooms differ from Non-Follow Through classrooms on these variables. The rationale for the second criterion is that Follow Through is intended to be an intervention program that offers alternatives to the conventional classroom. The primary focus on evaluating program implementation, then, should be on those essential components of each sponsor's model that differentiate that sponsor from the conventional classroom.

Admittedly, important dimensions of classroom implementation have not been recorded. For example, it is a goal for Far West Laboratory to have their teachers establish environments where a child can search for solutions to his problems in his own way and can risk, guess and make discoveries without serious negative psychological consequences; however, we cannot record whether such environments have been established or whether children are solving problems. We can only record that children engage in activities independently, work with a variety of materials and ask questions. Nevertheless, past observation analysis of the Follow Through programs have been able to discriminate between programs and have indicated that the sponsors have been successful in training teachers and aides to observably perform as the sponsor desired (Stallings, Baker, Steinmetz, 1972; Stallings, 1973).

Successful implementation of a program is also affected by the community, school officials, parents, and teachers. If any of these participants have a reluctant or negative attitude toward Follow Through in general or a model in particular, the level of implementation is affected. Although an assessment of teacher attitudes toward the model is used in this analysis, systematic information regarding the other sources of implementation variance, such as the community attitude, is not available. This evaluation concerns only what happened in the classroom.

A. Methods

1. Preliminary Analysis--Relationship of Entering Characteristics and Process Variables

In this analysis, observational variables describing classroom control systems and adult display of affect were related to entering characteristics of children such as sex, ethnicity, and baseline test scores of children. Classroom means were compared to see how differently teachers may behave in classrooms where, for example, there are more boys than girls. The classroom was used as the unit of analysis and the analysis was carried out separately for each sponsor and for the pooled Non-Follow Through sample. Only first grade classrooms were examined. Correlation coefficients were computed between classroom processes and relatively continuous demographic variables; and analyses of variance were performed on classroom processes for groupings of classrooms partitioned on the basis of more discrete demographic variables. Scatter plots of classroom scores on selected variables were also obtained to detect "outlying" classrooms and assist in interpretation of results. The overall conclusion from this analysis is that teachers for the most part treat classrooms with dissimilar characteristics very much the same. Six variables representing negative, unhappy, or punishing behavior on the part of adults had only two significant correlations in the combined seven models. Out of the 42 possible correlations these two could have occurred by chance. Appendix B presents these findings.

2. Assessment of Implementation

The results for each sponsor are presented in a separate section. Each section includes the following:

a. Description of the Models

The first step towards assessing implementation was to describe in detail each educational model. These model descriptions were approved by each sponsor. Components which can be assessed by the SRI observation instruments, such as environment, activities, and interaction, have been identified and are described for each model.*

b. Site Demographics

Each site for each sponsor is described demographically so the context of data collection is clear. Because the demographic tables are used only descriptively, statistical tests of differences are not computed. The tables are presented in each sponsor section.

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*For other descriptions of the models see Maccoby & Zellner (1970) and Weber (1970).

c. Designation of the Sponsor Implementation Variables

From the several sections of the Classroom Observation Instrument, a list of variables intended to describe representative classroom elements was constructed by SRI staff for each sponsor's model. A Sponsor Variable Questionnaire was then compiled and sent to the individual sponsors for corrections, deletions, and additions.

What would be desirable for a closely controlled experiment would be an explicit statement by the sponsors of what proportion of the time critical variables would occur in an ideally implemented classroom. However, elements in a classroom are not like those in a test tube. We have not yet learned to predict the amount of individualized attention, or feedback that a group of children need to meet specific goals. Each classroom group is made up of individuals, and individuals are most likely to need different rates of feedback or individualized instruction for maximum growth. Thus, even the most specific models such as University of Oregon and University of Kansas will alter the rate of reinforcement depending upon the need of the child. In the spring of 1973, the author (J. Stallings) visited ideal first and third grade classrooms specified by each sponsor. Although each teacher was an excellent example of the model, no sponsor was willing ultimately to suggest that all other first and third grade teachers should perform exactly like the one selected as the criterion. For instance, in East St. Louis in a University of Oregon first grade, the class spent the opening session enthusiastically discussing the movie Sounder which the children had seen on the previous day. The teacher was asking such questions as "How did you feel when the dog was shot?" and "Which of the people in the movie did you like best? Do you know anyone like those people?" A whole series of open-ended questions (coded as 2 on our observation instrument) were asked. The children responded and extended their responses. While this kind of discussion may occur within the University of Oregon model, the process is not part of the model specifications. Thus, it would seem unfair to use this classroom as a criterion against which to judge all other University of Oregon classrooms, even though the adults were clearly competent in using the skills and techniques prescribed in the University of Oregon model when teaching reading and math. We simply could not come up with a recommendation that would specify the rate of questions or reinforcement to be expected from even the most structured models.

In lieu of the ideal of exact specifications for each model, an appropriate and realistic alternative was to ask each sponsor to rate the FMO variables as to (1) importance to the model and (2) expected frequency of occurrence relative to "conventional" classrooms, according to the following definitions:

(1) Importance to the Model--Rating Categories

Critical--This is an essential program component. Its absence in one of our classrooms would mean that the program was not implemented. It is emphasized in training the teaching staff.

Important--This program component is considered beneficial to children and the teaching staff is strongly encouraged to include this in the classroom; however, absence of this element would not indicate poor implementation.

Not Relevant--This is not a part of the curriculum we have developed. It is something with which we do not concern ourselves; the occurrence or lack of occurrence would not be important.

(2) Expected Frequency Relative to Conventional Classrooms--Rating Categories

More--This should occur more frequently in our classrooms than in conventional classrooms.

Same--This should occur about as often in conventional classrooms as in our classrooms.

Less--This should occur less frequently in our classrooms than in conventional classrooms.

Only variables that were considered critical and that should occur more often in the sponsors' classrooms were used as implementation variables. Sponsors were also asked to rank-order variables on the CCL. The amount of time allotted to each activity over a week's time was ranked, as were the materials to be used in the activities and the preferred groupings of children and adults. Finally the sponsors were asked to add observation variables which they thought might provide more explicit information regarding the implementation of their model. The variables that were finally selected for each model from the Sponsor Variable Questionnaire are used in the sections that follow to assess model implementation. As can be seen on Table 11, there is considerable overlap in the variables chosen by the sponsors. However, it is the unique mix of variables that makes the models different from one another. As previously stated, all variables critical to sponsors' implementation have not been recorded. The variables selected represent the best descriptors the evaluators and sponsors could construct which could be observed reliably in sponsor classrooms. The intercorrelations of each sponsor's critical variables are presented in Appendix O.

Table 11

LIST OF CRITICAL VARIABLES SELECTED BY SPONSORS

Variables No.	Variables Description	Far West Labs	University of Arizona	Bank Street	University of Oregon	University of Kansas	High Scope	EDC
24	Child selection of seating and work groups	X	X	X			X	X
25	Games, toys, play equipment present	X	X	X			X	X
39	General equipment, materials present	X				X		X
65	Guessing games, table games, puzzles		X			X	X	
66	Numbers, math, arithmetic	X	X	X	X	X	X	X*
67	Reading, alphabet, language development	X	X	X	X	X	X	X*
70	Sewing, cooking, pounding		X				X	
71	Blocks, trucks						X	
74	Practical skills acquisition	X**		X				
83	Wide variety of activities, over one day	X	X	X			X	X
86	Teacher with one child	X	X	X			X	
87	Teacher with two children			X				
88	Teacher with small group		X	X	X	X	X	
92	Aide with one child	X		X				
94	Aide with small group		X		X	X	X	
114	One child independent	X	X	X				X
115	Two children independent							X
116	Small group of children independent	X		X				X
239	Math or science equipment/Academic Activities	X		X			X	X
240	Texts, workbooks/Academic Activities				X	X		
343	Child to adult, all verbal except response			X				
344	Individual child verbal interactions with adult	X	X	X	X	X	X	X
350	Child questions to adults	X	X	X			X	X
363	Child group response to adult academic commands/requests or direct questions				X			
372	Child presenting information to a group			X			X	
375	Adult instructs an individual child	X						X
376	Adult instructs a group				X			
390	Adult task-related comments to children						X	X
394	All adult acknowledgment to children	X		X	X	X	X	
398	All adult praise to children		X		X	X		
412	Adult feedback to child response to adult academic commands/requests, questions				X	X		
420	Adults attentive to a small group	X			X		X	
421	Adults attentive to individual children	X	X	X		X	X	
423	Positive behavior, adults to children	X	X	X				
435	Total academic verbal interactions				X			
438	Adult communication or attention focus, one child	X		X		X	X	X
440	Adult communication or attention focus, small group				X		X	
444	Adult movement	X						
450	All child open-ended questions							X
451	Adult academic commands/requests and direct questions to children				X	X		
452	Adult open-ended questions to children	X	X	X			X	X
453	Adult response to child's question with a question						X	X
454	Child's extended response to questions		X	X				
456	All child task-related comments	X	X				X	
457	All adult positive corrective feedback	X			X	X		
460	All child positive affect	X	X					X
469	All adult reinforcement with tokens					X		
509	Child self-instruction, academic				X*			
510	Child self-instruction, objects			X			X	X
513	Child task persistence			X		X	X	
514	Two children working together, using concrete objects						X	
515	Small group working together, using concrete objects			X			X	
516	Social interaction among children	X		X				X
574	Child movement	X						X
599	Child self-instruction, nonacademic	X	X				X	
	Total number of Critical Variables	28** 27*	21	27	16** 17*	17	29	20** 22*

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*Third grade only.

**First grade only.

d. Computing Implementation Scores

Two questions were addressed in this analysis:

- Are the classrooms of a given model similar to each other on selected variables?
- Are a sponsor's classrooms different from traditional classrooms on the implementation variables?

The first step in the assignment of implementation scores was to establish a standard of comparison for each implementation variable. Since Follow Through programs are intended to be innovative programs that offer alternatives to the conventional classroom, Non-Follow Through classrooms were used as the standard from which Follow Through classrooms should differ in specified ways. The standard was established separately for the first and third grades. Each Follow Through classroom was assigned an implementation score on each of the corresponding sponsor's implementation variables. The score is a number between 1 and 5 that represents the position of the Follow Through classroom mean or value relative to the distribution of Non-Follow Through classroom means or values. A nonparametric scaling technique was used rather than one that employs the mean and standard deviation of the Non-Follow Through classrooms because of the variety of distributions that were encountered for the Non-Follow Through classrooms (see Appendix M, Table M-1). As an illustration, Figures 20-21 display histograms of first grade Non-Follow Through classrooms on two selected implementation variables as well as the mean and standard deviation. The distribution in Figure 20 has the familiar bell shape and the distribution in Figure 21 has a J shape. In Figure 21, one measurement is an outlier. Any parametric approach that may be appropriate for one type of distribution may be inappropriate for another type. Also, the nonparametric procedure we have elected to use tends to be less sensitive to outliers than a more conventional parametric procedure.

Several plans for establishing a standard means for comparison were considered and discussed with a panel of educational researchers (see page 11). The previous SRI observation report (Stallings, 1973) had used quartile cutpoints in the distribution of Non-Follow Through classroom means to compute implementation scores for each Follow Through sponsors' classroom. More refined divisions of the Non-Follow Through distribution were considered such as using deciles; however, since there were only 35 Non-Follow Through first grade classrooms, only 3.5 Non-Follow Through classrooms would be represented in each decile. This suggestion was rejected on the basis that the precision of the estimation of the Non-Follow Through distribution did not warrant such a refined distinction in measuring implementation. As a reasonable compromise a quintile distribution of Non-Follow Through classroom means was selected to be the standard measurement.

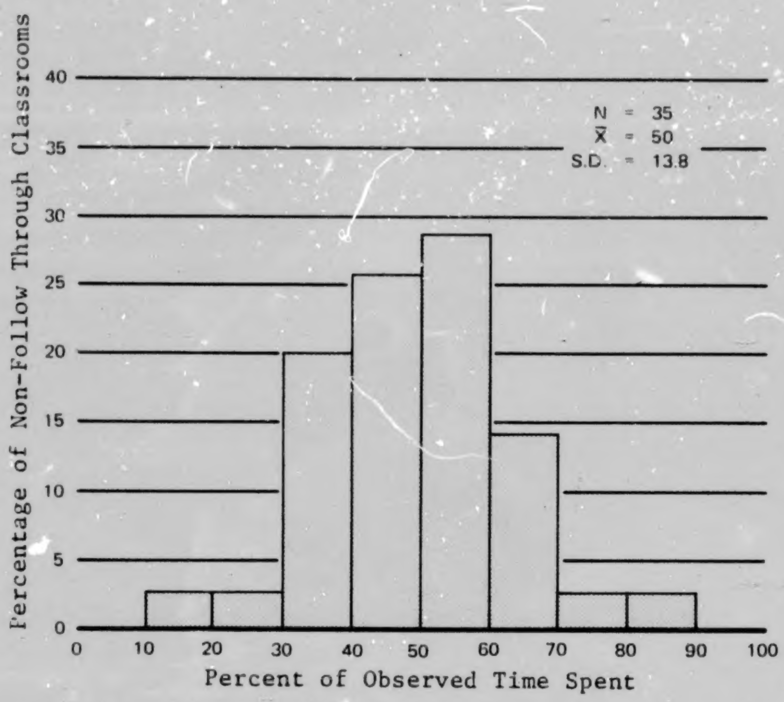

FIGURE 20 HISTOGRAM OF FIRST GRADE NON-FOLLOW THROUGH CLASSROOMS SHOWING PERCENT OF CHILD TIME SPENT IN READING, LANGUAGE (VAR. 67)

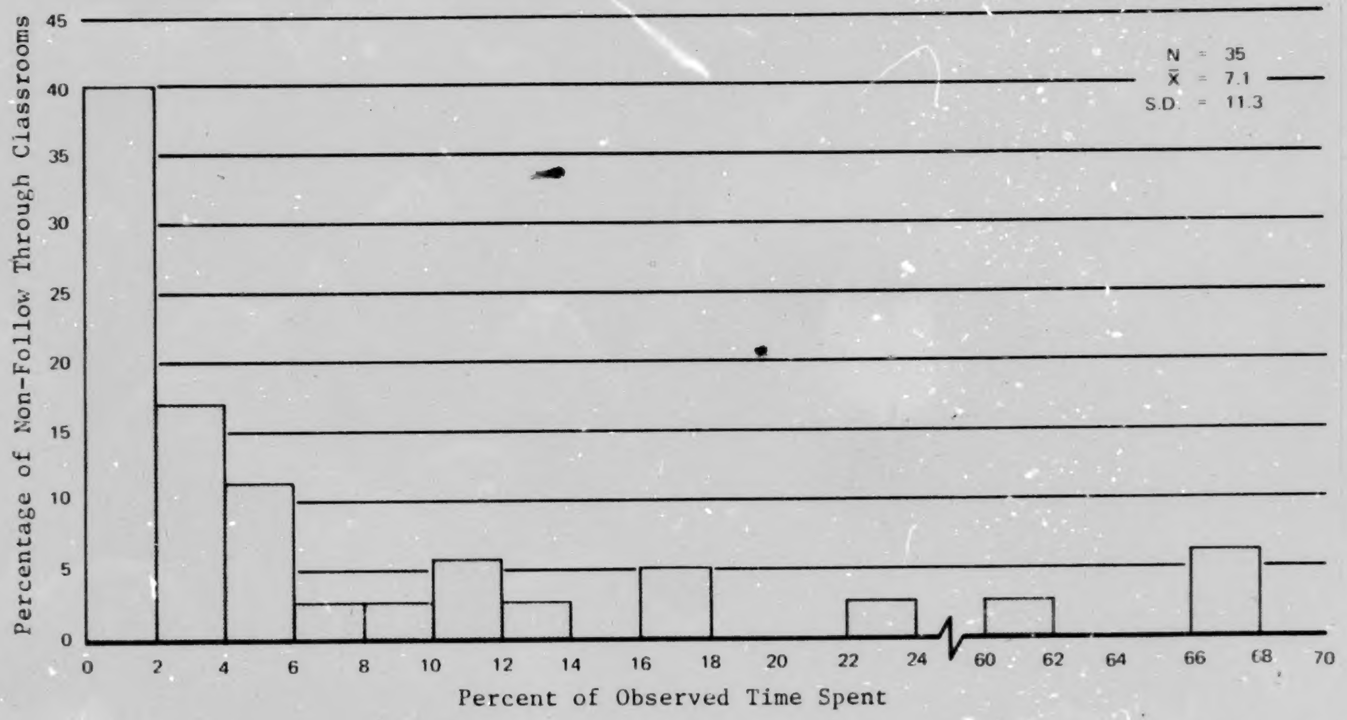

FIGURE 21 HISTOGRAM OF FIRST GRADE NON-FOLLOW THROUGH CLASSROOMS SHOWING PERCENT OF TIME TEACHER SPENT WITH ONE CHILD (VAR. 86)

Implementation scores for each sponsor were determined by rank ordering the Non-Follow Through classroom mean scores on each sponsor variable and dividing the distribution into five equal parts. There are 35 Non-Follow Through first grades. The seventh lowest score is the first quintile cutpoint; the fourteenth lowest score is the second quintile cutpoint; the twenty-first lowest score is the third quintile cutpoint; and the twenty-eighth lowest score is the fourth quintile cutpoint. Any Follow Through classrooms which have a score equal to or below the seventh score are in the first quintile. Any Follow Through classroom having a score above the twenty-eighth Non-Follow Through score is in the fifth quintile. Figure 22 shows the cutpoints for implementation scores for the variable "Games, toys, play equipment present" for the first grade Non-Follow Through classrooms. See Appendix N for a methodological discussion of the accuracy of quintile estimates.

Quintiles:	1st	2nd	3rd	4th	5th
	7 Classroom Scores	7 Classroom Scores	7 Classroom Scores	7 Classroom Scores	7 Classroom Scores

3.5 4.2 5.1 6.3
Cutpoint 1 Cutpoint 2 Cutpoint 3 Cutpoint 4

FIGURE 22 NON-FOLLOW THROUGH FIRST GRADE CLASSROOMS--
GAMES, TOYS, PLAY EQUIPMENT PRESENT (VAR. 25)

Each sponsor's classrooms were assigned an implementation score according to the placement of the sponsor classroom means among the quintile cutpoints. If the classroom mean was greater than the fourth quintile cutpoint, an implementation score of 5 was assigned to the classroom; if the mean was less than or equal to the fourth quintile cutpoint, but greater than the third quintile cutpoint, a score of 4 was assigned. The quintile scores of 3, 2, and 1 were assigned in the same way. An implementation score of 5 indicates that the mean of the variable for the Follow Through classroom exceeded that of at least 28 classrooms, or 80%, or the Non-Follow Through classrooms. If a sponsor's classroom received an implementation score of 4 or 5, we could say that the classroom was on the upper end of the Non-Follow Through distribution; a score of 3 indicates that the classroom is in the mid-range of the Non-Follow Through distribution; and a score of 1 or 2 indicates that the classroom is on the lower end of the Non-Follow Through distribution. The quintile cutpoints for each implementation variable are presented in Appendix M.

There are some exceptions to the above specification of the implementation scores when several quintile cutpoints have a value of zero. This occurs when 14 (40%) or more of the Non-Follow Through classrooms have a mean of zero on a variable. (See Figure 23 for an example.) In such cases the rule was adopted that when the value for a Follow Through classroom was zero, the implementation score assigned to that classroom corresponds to the highest quintile cutpoint that was zero. For example, if the third quintile cutpoint was greater than zero and the second quintile cutpoint was equal to zero, then a Follow Through classroom with a value of zero would obtain an implementation score of 2 on that variable.

Quintiles:	1st	2nd	3rd	4th	5th
	7 Classroom Scores	7 Classroom Scores	7 Classroom Scores	7 Classroom Scores	7 Classroom Scores

0.0	0.0	1.61	3.70
Cutpoint 1	Cutpoint 2	Cutpoint 3	Cutpoint 4

FIGURE 23 NON-FOLLOW THROUGH FIRST GRADE CLASSROOMS--TEACHER WITH TWO CHILDREN (VAR. 87)

In several instances 28 (80%) or more of the Non-Follow Through classrooms, at a given grade level, had means of zero on seven implementation variables (Variables 70, 74, 93, 450, 469, 514, 515, see Appendix M) so that all quintile cutpoints were equal to zero. (See Figure 24.) Decision rules assigned an implementation score of 4 for these variables to a Follow Through classroom unless the classroom mean was above zero. Any classroom that had a mean above zero on these variables would receive an implementation score of 5. In any case the recorded implementation score of 4 could be misleading and scores should be interpreted with caution. It must be remembered that even though some

Quintiles:	1st	2nd	3rd	4th	5th
	7 Classroom Scores	7 Classroom Scores	7 Classroom Scores	7 Classroom Scores	7 Classroom Scores

0.0	0.0	0.0	0.0
Cutpoint 1	Cutpoint 2	Cutpoint 3	Cutpoint 4

FIGURE 24 NON-FOLLOW THROUGH FIRST GRADE CLASSROOMS--SEWING, COOKING, POUNDING (VAR. 70)

variables are infrequent, it is important to note whether they occur in sponsored classrooms and not in the Non-Follow Through classrooms. (See Table M-1 in Appendix M to identify those variables where two or more quintile cutpoints were the same.) In addition to those cases mentioned above there are a few cases when two quintiles in sequence had the same value. (This occurred for three physical environment variables; see Appendix M for Variables 24, 27, 37.)

A total implementation score for a classroom was computed by summing the implementation scores across the corresponding sponsor's implementation variables and then dividing by the highest possible sum. The resulting proportion was then multiplied by 100 so that the total implementation score is expressed in terms of a percentage of the total possible. For example, if a hypothetical sponsor's classroom were being rated on four variables, the highest possible sum of implementation scores for a classroom would be 4 x 5 = 20. If a classroom had implementation scores of 3, 3, 4, and 5 on the individual implementation variables, then the total implementation score for the classroom would be (15/20)100 = 75%.* The reader needs to understand that there is no zero point when computing implementation scores. If all classrooms received the lowest implementation score of 1 on every single implementation variable, their overall implementation score would be 20%, not zero. If they received scores of 5, their overall implementation score would be 100%. Thus, the actual range is from 20 to 100 and the midpoint is a score of 60.

In order to compare the sponsor programs with Non-Follow Through classrooms, a total implementation score was also computed for each Non-Follow Through classroom on each sponsor's set of implementation variables. The mean and standard-deviation of the Non-Follow Through pooled classrooms are reported for each sponsor. These statistics serve three purposes:

- The Non-Follow Through mean serves as a reference point for an implementation score. If all the quintile cutpoints had been distinguishable, then the mean total implementation score for the Non-Follow Through classrooms would be 60 (an average score of 3 on each variable out of 5 possible on all variables). Since there are a number of variables where some or all Non-Follow Through quintiles are zero, it was necessary to compute a separate mean for each set of sponsor-implemented variables.
- The standard deviation was used as a scaling factor to compare a sponsor's total implementation score relative to the Non-Follow Through score. A t-test was used to test whether the mean total implementation score for Follow Through was significantly greater than the mean for Non-Follow Through.

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*The reliability of the estimates of the quintile cutpoints is examined in Appendix N.

An analysis of variance was run separately for each sponsor and grade level to test whether the sites differed on total implementation scores. This test indicates whether the variability in implementation scores among sites is large relative to the within-site variability among classrooms at a site.

3. Teacher Questionnaire

In an effort to understand the relationship between the degree of model implementation and the sponsor's teacher training, several analyses were conducted. Sponsor-stated emphasis in training was compared with teachers' perceptions of emphasis in training. Reports of teacher training and selected teacher characteristics were correlated with the classroom total implementation scores, teacher descriptions of the structure of their classrooms were tabulated, and results for each sponsor's site were compared.

B. Results

The report of implementation findings is presented for each sponsor in a separate section. Model descriptions and site descriptions are presented first, followed by implementation findings.

1. Responsive Educational Model--Far West Laboratory

a. Description of the Model

The Responsive Educational Program model advocates structuring learning activities so that they are self-rewarding (autotelic), and providing an environment that is responsive to each child's needs. The child's culture and the child's interests are the cornerstones upon which the curriculum is built. According to the autotelic principle, a child learns best in an environment where he can try out things that interest him, and in which he can risk, guess, ask questions, and make discoveries, without serious negative psychological consequences. Autotelic activities include experiences and learning activities that are viewed as helping a child to develop a skill, learn a concept, acquire self direction and inner controls.

In a Far West Laboratory classroom, the child is free to explore and to choose activities within a carefully controlled environment that contains learning centers and a variety of games, activities, and experiences. The child can search for solutions to his problems in his own way, using a variety of resources. Rather than being directive, the adults pose questions and guide the child to the discovery of solutions which may fit together and lead in turn to still other discoveries. The child's intrinsic satisfaction and pleasure in the experience are considered to be his reward, rather than extrinsic rewards.

The assumption is that no single theory of learning can account for all the ways in which children learn. It is considered essential that a variety of educational alternatives be available to build on whatever background, cultural influence, or life style the child brings to school.

Either individual children or small groups of children can be found in a variety of learning centers. Teacher, aides or volunteers may work with a small group or with individual children. Concrete objects are often used for instructional purposes. In order to promote child inquiry, adults are most likely to ask leading open-ended questions or to respond to a child's question with another question.

b. Descriptions of the Sites

In order to provide the reader with an idea of the context within which the observational data were collected, demographic descriptions of each site have been prepared. Observations were conducted at five Far West Laboratory sites: Berkeley, California; Duluth, Minnesota; Lebanon, New Hampshire; Salt Lake City, Utah; and Tacoma, Washington.

Four geographic regions established by the U.S. Bureau of the Census are represented in the Far West sites (see Table 12). Four Far West cities were classified as medium sized cities. Only Lebanon is classified as a town.

The median family incomes are quite similar across the five sites. Correspondingly, the five sites show similarities in percentages of families below poverty level,* with a difference of less than 3% between the highest and lowest.

There are marked differences in nonwhite populations among the Far West sites. Berkeley has a 32.3% nonwhite population, while Lebanon's is only 0.6%. Note that Berkeley's nonwhite population is approximately one third more than the average for Follow Through. Appendix B presents an analysis of the effect of basic site characteristics. Apparently, Far West classroom processes are not affected by ethnic differences.

The percentage of the adult population over 25 years of age in the five Far West sites who have completed high school is high relative to the Follow Through average. Berkeley's 77% in this category is the highest for all observed sites for all sponsors; Tacoma's 55.5%, the lowest of the Far West sites, is still higher than the average for all Follow Through.

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*The U.S. Census Bureau uses the U.S. Office of Economic Opportunity poverty index guidelines to establish "Poverty level."

Table 12

SITE AND DEMOGRAPHIC DATA FOR FAR WEST LABORATORY SITES

A. Geographic Data

Site Code	Site Location	Region	Metropolitan Status	Population (1970 census)
0201	Berkeley, Calif.	Pacific	Medium city	116,716
0204	Duluth, Minn.	West North Central	Medium city	100,578
0207	Lebanon, N.H.	North East	Town*	9,725
0209	Salt Lake City, Utah	Mountain	Medium city	175,885
0213	Tacoma, Wash.	Pacific	Medium city	154,581

B. Demographic Data for Total Population

Site Name	Median Family Income	Percent of Families Below Poverty Level	Percent of Population Nonwhite	Percent of Adults Over 25 Who Finished High School
Berkeley	$9,987	10.0%	32.3%	77.0%
Duluth	9,313	7.4	1.7	58.9
Lebanon	9,125	8.0	0.6	60.3
Salt Lake City	8,817	10.1	3.2	64.5
Tacoma	9,537	9.2	9.2	55.5
Average for all sites	$8,631	13.9%	20.7%	49.7%

C. Characteristics of the Follow Through Evaluation Sample at the Site for First Grade**

Site Name	Average Percent with Preschool	Average Percent with First Language Other than English	Average Baseline Score
Berkeley	--%	0%	--
Duluth	52	0	33
Lebanon	20	0	--
Salt Lake City	48	12	32
Tacoma	64	0	33

---

*Not within Standard Metropolitan Statistical Area (SMSA).

**Taken from the Follow Through Roster; represents the Follow Through evaluation sample.

Sources: U.S. Bureau of the Census, 1970; SRI

The baseline scores for the first grade children are very similar. This is true even for Salt Lake City where 12% of them do not use English as their first language.

c. Sponsor Implementation Variables

Tables of the variables selected to assess implementation of the Far West model can be found in Appendix M along with the implementation score for each variable for each classroom. As described in the methodology section of this chapter, the final selection of variables was made on the basis of sponsor ratings in the Sponsor Variable Questionnaire. How the implementation scores were computed is described in the methodology section on page 100. Since the aim of sponsors was to differ in specific ways from traditional classrooms, the traditional classroom has been used as the standard yardstick to measure each sponsor's implementation. Far West selected 27 variables on which they would expect their classrooms to deviate from the conventional classrooms. An implementation score of 3 would indicate the classroom was in the midrange of conventional classrooms; an implementation score of 5 would mean the model classrooms were in the uppermost range of conventional classrooms. As previously stated, the variables selected for the Far West model are limited descriptors of the program. Many processes and procedures important to the program are not assessed in this study of implementation.

d. Implementation Findings

Figure 25 and Table 13 present the total implementation scores for each classroom for each site and over all sites for first and third grade classrooms. These total scores were computed by adding each quintile score of Far West Laboratory's 27 implementation variables and dividing by the total possible score. The scores are presented as percentages. Total scores for Non-Follow Through classrooms were also computed for the Far West Laboratory implementation variables. Means and standard deviations are presented in Table 13 along with the results of one-tailed t-tests, comparing Non-Follow Through with Far West Laboratory. In addition, Table 13 presents the analysis of variance among sites.

All Far West's classroom scores are above the Non-Follow Through mean, and the histograms presented in Figure 25 indicate there is little overlap in the Far West and Non-Follow Through classroom scores. The analysis of variance suggests that there is no statistical difference in the among-site variance and the within-site variance. The greatest difference is seen in the third grade between Salt Lake City which has a mean of 83 and Duluth and Lebanon whose means are 71. The largest standard deviation within a site is found in Duluth third grades. Although it might be more difficult for teachers to implement the model when children don't understand the language, the 12% of children who do not speak English as a first language does not seem to have affected the implementation of the model in Salt Lake City, since the implementation scores there

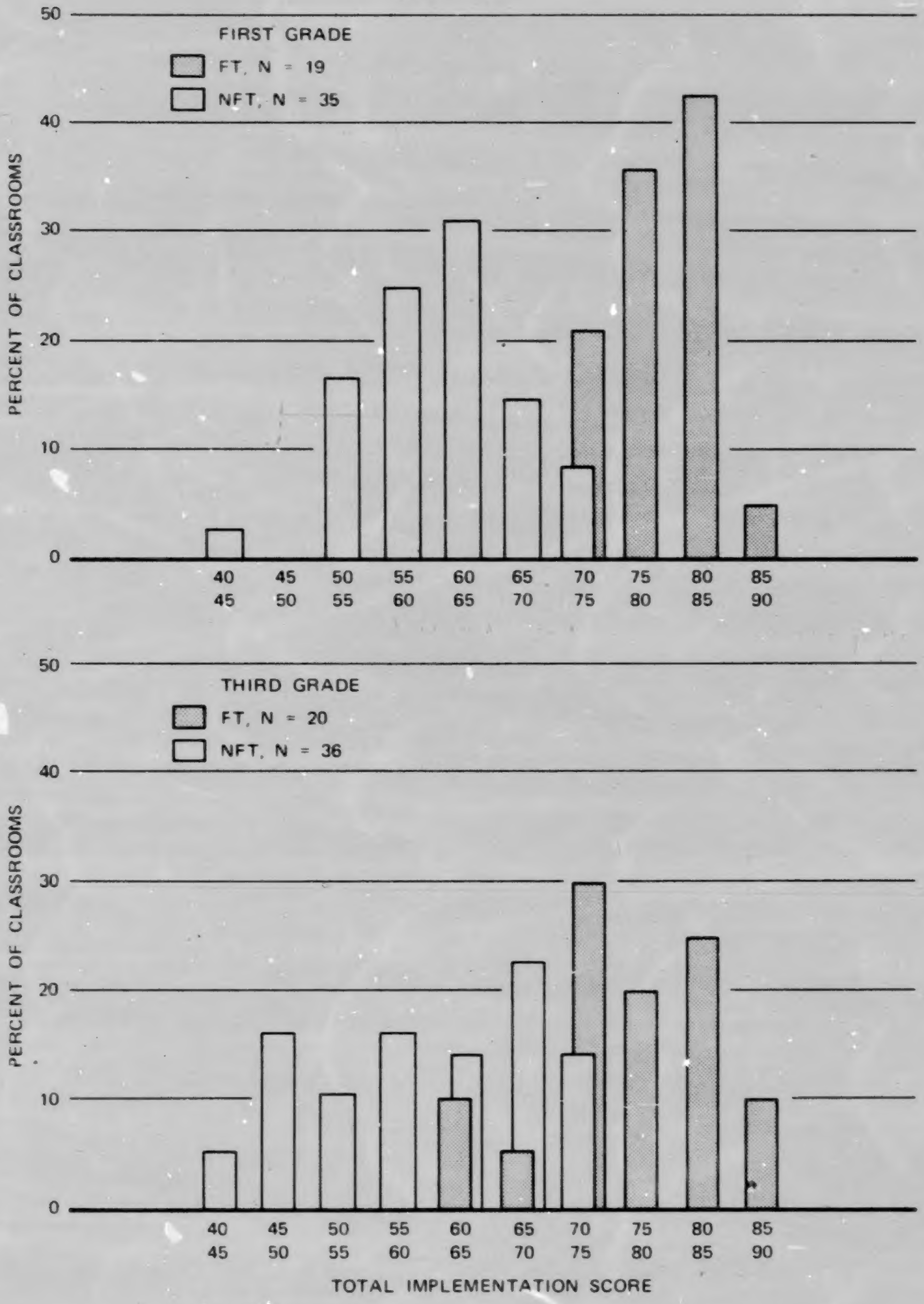

FIGURE 25 HISTOGRAM SHOWING IMPLEMENTATION SCORES FOR FAR WEST LABORATORIES

Table 13

TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS BY SITE--FAR WEST LABS

		First Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Berkeley	(EK)	72.6%	79.3%	75.6%	71.9%	74.8%	3.4
Duluth	(EK)	76.3	84.4	80.7	80.0	80.4	3.3
Lebanon	(EK)	81.5	75.6	84.4	80.7	80.6	3.7
Salt Lake City	(EK)	80.7	85.9	75.6	80.0	80.6	4.2
Tacoma	(EK)	78.5	71.9	78.5	71.1	75.0	4.1
Sponsor Scores (N = 20):						78.3%	4.4
NFT Scores (N=35):						60.3	6.3

$t = 11.28$

$p < .001$

$f = 2.65$

$p <$ NS

		Third Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Berkeley	(EK)	82.2%	70.4%	79.3%	71.9%	75.9%	5.7
Duluth	(EK)	74.1	61.5	80.0	71.1	71.7	7.7
Lebanon	(EK)	69.6	77.8	74.1	64.4	71.5	5.8
Salt Lake City	(EK)	84.4	89.6	76.3	85.2	83.9	5.6
Tacoma	(EK)	79.2	84.4	80.7	72.6	79.2	5.0
Sponsor Scores (N=20):						76.4%	7.2
NFT Scores (N=36):						59.0	9.4

$t = 7.18$

$p < .001$

$f = 3.07$

$p < .05$

are particularly high. As the t-tests indicate, the overall Far West classroo classroom means at both first and third grades are significantly different from Non-Follow Through classrooms.

Scores for each critical implementation variable for each Far West Laboratory site and classroom are presented in Appendix M, Table M-3, in tabular form. The tables are prepared so that the number of classrooms receiving a particular implementation score is entered in a column. The numbers of classrooms from each site are entered in the rows. The total number of classrooms receiving a particular implementation score, as well as the percentage computed, is entered in the bottom rows. Only a few critical variables will be discussed in this text.

As presented in Table 14, four first grade classrooms in Salt Lake City have the highest implementation score (5) on the use of blocks and trucks (Var. 71). Overall, 65% of the Far West classrooms were at the upper end of the scale on this variable. Of the Non-Follow Through classrooms, 40% had a mean of zero which, as explained in the methodology section, suggests that Far West classrooms receiving a score of 3 could also have a mean of zero. However, as shown in the Annex,* all Far West first grade sites had some blocks and trucks present. (The lack of entries for the third grade on this variable is explained by the fact that, for developmental reasons, Far West did not select this variable as an essential component for third grade implementation.)

Table 14

BLOCKS, TRUCKS (Variable 71)--FAR WEST

	First Grade Classrooms with Implementation Scores of				
Sites	1*	2*	3	4	5
Berkeley, Calif.			3		1
Duluth, Minn.			1	2	1
Lebanon, N.H.			1		3
Salt Lake City, Utah					4
Tacoma, Wash.			2	1	1
Total classrooms			7	3	10
Percent of classrooms			35%	15%	50%

* Of the Non-Follow Through classes, 40% (the two lowest quintiles) had a mean of zero on this measurement, but none of the Far West sites had a mean of zero (see text).

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*The Annex is available for consultation at SRI.

As indicated in Table 15 for Variable 83 (Wide variety of activities, over one day), most first grade teachers in four sites ranked in the fifth quintile. Seventeen of the twenty teachers in the third grade had classrooms with implementation scores of 4 or 5. This variable is important to the Far West Lab program, since a wide variety of activities provides the children an opportunity to work with materials independently.

Table 15

WIDE VARIETY OF ACTIVITIES, OVER ONE DAY (Variable 83)--FAR WEST

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
Berkeley, Calif.					4				1	3
Duluth, Minn.				3	1				1	3
Lebanon, N.H.					4					4
Salt Lake City, Utah					4			1	1	2
Tacoma, Wash.					4			2	1	1
Total Classrooms				3	17			3	4	13
Percent of classrooms				15%	85%			15%	20%	65%

Table 16 shows how Far West classrooms score on children working independently. As shown, Far West children are more often independent in activities than most Non-Follow Through children.

Table 17 indicates that Far West classrooms in third grade have more small groups of children working together than Non-Follow Through classrooms; they are at the upper end of the scale on Variable 116 at all five sites. Of the Far West first grade classrooms, 70% are in the fifth quintile for independent group work, and 90% of the third grades are in the fifth quintile.

In Table 18, scores for Variable 86 (Teacher with one child) indicate that Far West children are receiving more individual attention than comparison children. This is especially true in Salt Lake City and Tacoma where all four first grade classrooms scored in the fifth quintile. Over all classrooms, data show that children from Far West first and third grades are at the upper end of the scale in the receipt of individual attention from teachers.

Table 16

ONE CHILD INDEPENDENT (Variable 114)--FAR WEST

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Berkeley, Calif.				3	1					4
Duluth, Minn.				1	3					4
Lebanon, N.H.					4				1	3
Salt Lake City, Utah					4					4
Tacoma, Wash.					4					4
Total classrooms				4	16				1	19
Percent of classrooms				20%	80%				5%	95%

Table 17

SMALL GROUP OF CHILDREN INDEPENDENT (Variable 116)--FAR WEST

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Berkeley, Calif.		1	1		2					4
Duluth, Minn.				2	2				1	3
Lebanon, N.H.				1	3					4
Salt Lake City, Utah					4					4
Tacoma, Wash.			1		3				1	3
Total classrooms		1	2	3	14				2	18
Percent of classrooms		5%	10%	15%	70%				10%	90%

Table 18

TEACHER WITH ONE CHILD (Variable 86)--FAR WEST

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
Berkeley, Calif.				4		1		1		2
Duluth, Minn.		1		1	2				1	3
Lebanon, N.H.				1	3			1		3
Salt Lake City, Utah					4				1	3
Tacoma, Wash.					4					4
Total Classrooms		1		6	13	1		2	2	15
Percent of classrooms		5%		30%	65%	5%		10%	10%	75%

Another variable related to Variable 86 (Teacher with one child) is Variable 375a (Adult instructs an individual child). As can be seen in Table 19, all of Tacoma's first and third grade classrooms are in the fifth quintile on this variable. Individualized instruction is an important Far West Laboratory strategy, especially in the first grade, and all first grade classrooms in Table 19 show an implementation score of 4 or 5.

Table 19

ADULT INSTRUCTS AN INDIVIDUAL CHILD (Variable 375a)--FAR WEST

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
Berkeley, Calif.				3	1				2	2
Duluth, Minn.				4				2	1	1
Lebanon, N.H.					4		1		1	2
Salt Lake City, Utah				3	1				1	3
Tacoma, Wash.					4					4
Total classrooms				10	10		1	2	5	12
Percent of classrooms				50%	50%		5%	10%	25%	60%

The variable "Adult open-ended questions to children" (Var. 452a) is considered to be an important method for encouraging child thinking. Approximately 50% of the Far West classrooms have an implementation score of 5. All of the Far West first grades in Lebanon and all of the Far West third grades in Salt Lake City were in the fifth quintile. Scores for the other classrooms are scattered over the other four quintiles (Table 20).

Table 20

ADULT OPEN-ENDED QUESTIONS TO CHILDREN (Variable 452a)--FAR WEST

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Berkeley, Calif.	1		2		1	1	1	1	1	
Duluth, Minn.				1	3			1	1	2
Lebanon, N.H.					4			2		2
Salt Lake City, Utah	3		1							4
Tacoma, Wash.	1		1	1	1		1	1		2
Total classrooms	5		4	2	9	1	2	5	2	10
Percent of classrooms	25%		20%	10%	45%	5%	10%	25%	10%	50%

When children receive individual attention and are asked open-ended questions, it may be that they find it easier to ask questions of adults. In both first and third grades, 60% of the Far West classrooms have an implementation score of 5 for "Child questions to adult" (Table 21). Salt Lake City has all its Far West classrooms in the fifth quintile. All of Duluth's Far West third grades also received an implementation score of 5. Overall, 88% of the classrooms have an implementation score of 4 or 5 which places them at the upper end of the scale.

e. Summary of Implementation

As was noted earlier, all of the Far West sites were similarly implemented when total scores are considered. There is little within-site or among-site difference in these scores. When using the comparison classrooms as a yardstick, the Far West Laboratory's classroom scores are high and are statistically different from Non-Follow Through scores.

Table 21

CHILD QUESTIONS TO ADULTS (Variable 350a)--FAR WEST

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Berkeley, Calif.				1	3			1	2	1
Duluth, Minn.			2	1	1					4
Lebanon, N.H.				1	3			1	3	
Salt Lake City, Utah					4					4
Tacoma, Wash.			1	2	1				1	3
Total classrooms			3	5	12			2	6	12
Percent of classrooms			15%	25%	60%			10%	30%	60%

The results from the observer accuracy study indicate that the third grade observer in Berkeley coded less than 60% of the 4 code (instruction, explanation) accurately (see Appendix L, Table L-1). However, the data reported on Table 20 which used the 4 code do not appear dissimilar from other sites on this variable. They all are on the upper end of the measuring stick when compared to Non-Follow Through. The observer in the first grade at Lebanon had an accuracy rate of less than 60% on 1Q codes, (direct question). However, on the variable "Child questioning an adult" which uses this code, the data from Lebanon first grade appear similar to the data of other first grade sites.

The reader is reminded that a sponsor's implementation is evaluated in two ways: (1) Do the sponsor's classrooms differ from the traditional classroom? and (2) Are a given sponsor's classrooms similar to each other in level of implementation? Using these criteria we conclude that the Far West Laboratory would be able to implement their model in other sites similar to the ones used in this analysis.

2. Tucson Early Education Model (TEEM)--University of Arizona

a. Description of the Model

Using the child's characteristics when he begins school as a base, the TEEM model attempts to develop a foundation for his future learning. The goal is to increase the child's competence by improving his skills in four general curriculum areas: (1) development of language competence; (2) development of an intellectual base (ability to attend, recall, organize, and evaluate); (3) development of a motivational base (attitudes of productive involvement such as a liking for school and for learning, task persistence, and expectation of success); and (4) development of societal arts and skills (reading and math skills, social skills of cooperation, ability to plan). These skills are to be developed in a functional setting where concepts are illustrated by the use of practical examples from the child's home and school environment. Thus, the use of the home, neighborhood, and community as instructional resources is central to the model.

The classroom is organized around a variety of behavioral settings and learning centers. Children are allowed to make choices regarding their activities and seating arrangements. Small groups of children are able to learn from each other and are given individual attention from adults. Teachers are expected to be models of desired behavior. The sponsor of TEEM believes that the child's acquisition of language and other skills is affected by such modeling on the part of adults. Children are encouraged to ask questions and adults respond with liberal quantities of praise, support, attention, and affection. Every effort is made to ensure that the child will come to regard school as significant, desirable, and rewarding.

b. Description of the Sites

Project sites under the University of Arizona's sponsorship are Des Moines, Iowa; Fort Worth, Texas; LaFayette, Georgia; Lakewood, New Jersey; Lincoln, Nebraska; and Newark, New Jersey. They represent four geographic regions of the country. Demographics for the six sites are indicated on Table 22.

The sites range from large cities to a small town. The family income ranges about $2,000, but the percent of families below poverty level ranges from 5.6 in Lincoln to 18.4 in Newark. Newark also has larges percent (56%) of non-white families and Lincoln the lowest (2%). The percentage of adults over 25 who have finished high school ranges from 12.8% in Lincoln to 30% in LaFayette (Newark is also in the low range with 33.2%). More of the first grade children in Newark have had preschool experience (73%) than in most other sites; only 30% of the children in Lincoln have had preschool.

In Fort Worth 23% and in Lakewood 18% of the Follow Through children do not speak English as their first language. The baseline test score is lower for Lakewood than for other sites. Whether or not this lower score is related to the children who do not speak English as a first language is not analyzed in this report. (Tests are given in English only and children entering school might be expected to score lower on tests.)

Table 22

SITE AND DEMOGRAPHIC INFORMATION FOR UNIVERSITY OF ARIZONA SITES

A. Geographic Data

Site Code	Site Location	Region	Metropolitan Status	Population (1970 census)
0305	Des Moines, Iowa	West North Central	Big city	220,587
0307	Fort Worth, Texas	West South Central	Big city	393,476
0308	LaFayette, Georgia	South Atlantic	Town*	6,092
0309	Lakewood, N.J.	Middle Atlantic	Small city*	17,874
0311	Newark, N.J.	Middle Atlantic	Big city	382,417
0316	Lincoln, Nebraska	West North Central	Medium city	149,518

B. Demographic Data for Total Population

Site Name	Median Family Income	Percent of Families Below Poverty Level	Percent of Population Nonwhite	Percent of Adults Over 25 Who Finished High School
Des Moines	$10,239	6.9%	6.2%	65.3%
Fort Worth	9,271	10.3	20.6	48.8
LaFayette	7,966	15.7	8.1	30.0
Lakewood	7,961	14.6	20.1	47.5
Newark	7,735	18.4	56.0	33.2
Lincoln	9,928	5.6	2.3	72.8
Average for all sites	$ 8,631	13.9%	20.7%	49.7%

C. Characteristics of Follow Through Evaluation Sample at the Site for First Grade**

Site Name	Average Percent with Preschool	Average Percent with First Language Other than English	Average Baseline Score
Des Moines	39%	0%	32
Fort Worth	80	23	--
LaFayette	52	0	--
Lakewood	26	18	25
Newark	73	3	28
Lincoln	30	1	33

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*Not within Standard Metropolitan Statistical Area (SMSA).

**Taken from the Follow Through Roster; represents the Follow Through evaluation sample.

Sources: U.S. Bureau of the Census, 1970; SRI

c. Sponsor Implementation Variables

The variables selected to assess implementation and exportability of the University of Arizona model can be found in Appendix M. The tables in Appendix M show the implementation scores for each variable for each classroom. As described in the methodology section of this chapter, the final selection of variables was made on the basis of sponsor ratings reported on the Sponsor Variable Questionnaire. The variables selected for the University of Arizona model are of course limited descriptors of the program. Many processes and procedures important to the program are not assessed in this study of implementation. For instance, one of the model's goals is for small groups of children to learn from each other. Our variables record only that the children are working together. We cannot judge whether or not they are learning from each other. How the implementation scores were computed is described in the methodology section on page 100. Since the aim of the sponsors was to provide programs that differ in specific ways from traditional classrooms, the traditional classroom has been used as the standard yardstick to measure each sponsor's implementation. Twenty-one variables were selected by University of Arizona as critical to their model, and there is the expectation that their classrooms will differ from conventional classrooms on these variables. An implementation score of 3 would indicate the classroom was in the mid-range of conventional classrooms; an implementation score of 5 would mean the model classrooms were in the uppermost range of conventional classrooms.

A selection of variables indicated by the University of Arizona as being critical to their model are discussed in the text. Tables of all other critical variables are presented in Appendix M.

d. Implementation Findings

Figure 26 and Table 23 present the total implementation scores for each classroom by grade level. These total scores were computed by adding each quintile score of University of Arizona's 21 implementation variables and dividing by the total possible score. Thus, an average score on all variables was computed. The scores are presented as percentages. Total scores for Non-Follow Through classrooms were also computed for the University of Arizona implementation variables. Means and standard deviations are presented in Table 23 along with the results of one-tailed t-tests, comparing Non-Follow Through classrooms with classrooms using the University of Arizona model. Table 23 presents the analysis of variance among sites.

The F tests on Table 23 indicate that in both grade levels for the University of Arizona there is a statistical difference in the variance among sites from the variance within sites in implementation scores. The greatest difference is seen in the first grade between Lincoln with a mean of 83 and Newark with a mean of 55. The standard deviation within sites ranges from 1.5 in the Newark first grades to 10.9 in the Des Moines third grades.

As indicated by the t-tests there is a significant difference between the total implementation scores in both the first and third grade University of Arizona classrooms and the first and third Non-Follow Through classrooms. Histograms presented in Figure 26 indicate there is overlap in the University of Arizona and the Non-Follow Through classrooms. Much of the overlap is accounted for by the classrooms in Newark. It can be noted that the total score of implementation for Newark is lower than the Non-Follow Through implementation score in first grade and approximately the same in third grade. The previous section describing sites suggested that Newark differs from other sites in that they have more families below poverty level, they have a larger nonwhite population and have a lower percent of adults who have not finished high school. Unfortunately we are not able to examine in this analysis the extent to which community demographics impinge upon implementation. The characteristics of children in Newark are similar to those at other sites. In general they have had a few more months in Follow Through, a greater percent have had preschool and their baseline WRAT scores are in the upper ranges of site means (see Tables 3 and 4). The population is apparently less transient than at other sites, since 81% of the children who had been tested when entering kindergarten were found in first grade. The only difference apparent in the child characteristics is the higher percent of black students in the Newark classrooms. However, Appendix B (page B-14) indicates that the child's ethnicity does not effect the classroom processes (i.e., control systems and affect shown) in the University of Arizona classrooms. An examination of observer accuracy at Newark leads to the conclusion that the data were properly collected (see Appendix L, Table L-2, for observer reliability). A study of observer accuracy for other University of Arizona sites indicates that the codes which form the variables in this section were acceptably reliable. A discussion with a representative at the University of Arizona suggested three possible explanations for the lower implementation scores in Newark: (1) The sponsor had difficulties in providing optimum classroom services during the first years of sponsorship. (2) Newark schools have all of the problems of large inner-city schools, including a high rate of families below the poverty level. (3) Some segments of the school community preferred educational models that emphasized teaching the basic skills at an early age, so that considerable time had to be spent in developing, both in teachers and in parents, an understanding and an appreciation of an educational plan that integrated the basic skills into a total curriculum. Regardless of the low implementation score reported in this study, the sponsor is pleased with the progress Newark has made over the years toward implementation.

The large percent of children speaking English as a second language does not seem to have negatively affected the implementation of the model in Ft. Worth and Lakewood since their implementation scores in both grades are high.

Scores for each critical implementation variable for each University of Arizona site and classroom are presented in Appendix M, Table M-3 in tabular form. The tables are prepared so that the number of classrooms receiving a particular implementation score is entered in a column. The numbers of classrooms from each site are entered in the

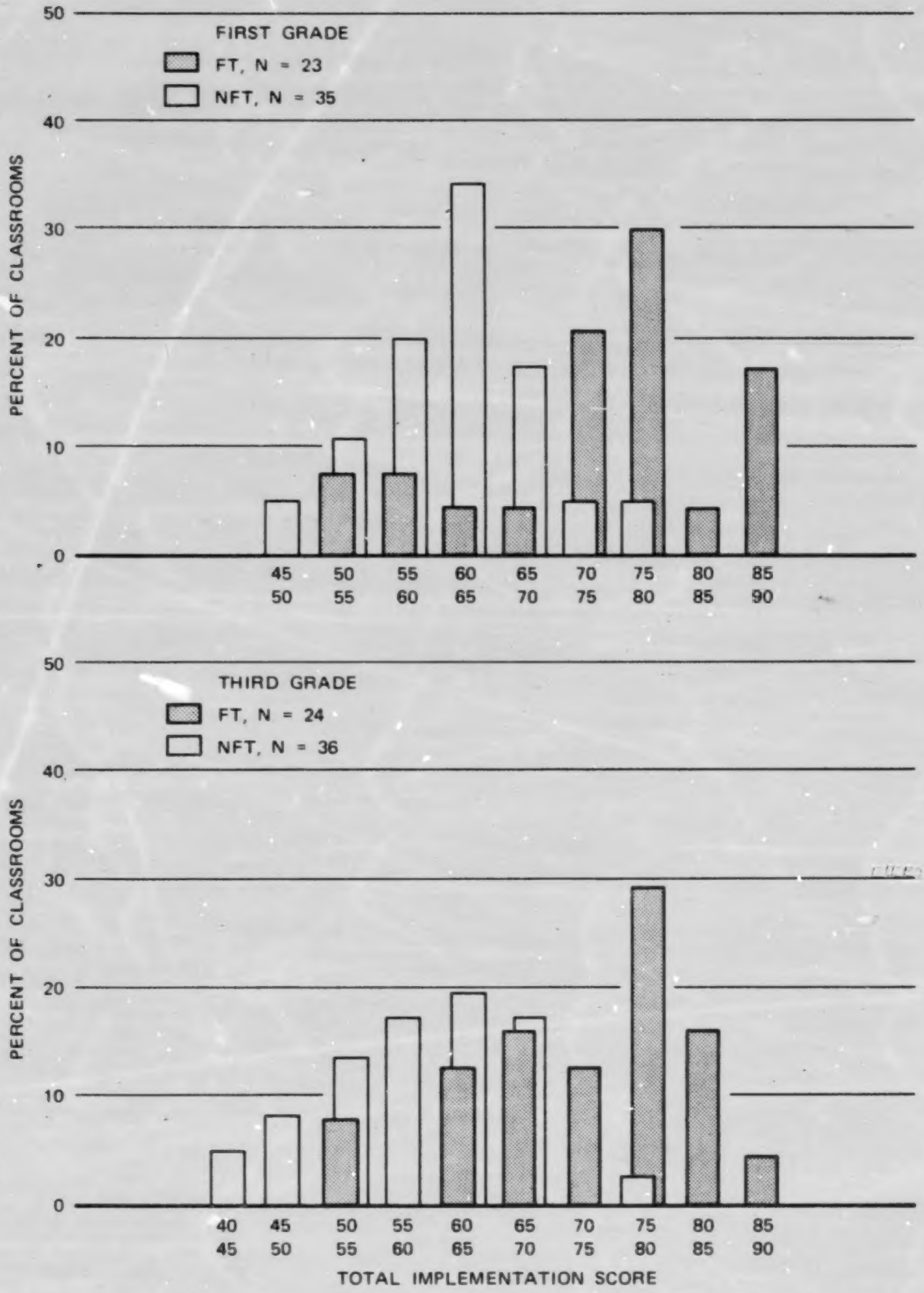

FIGURE 26 HISTOGRAM SHOWING IMPLEMENTATION SCORES FOR UNIVERSITY OF ARIZONA

Table 23

TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS BY SITE--UNIVERSITY OF ARIZONA

	First Grade					
	Classroom Scores				Site Scores	
Sites	1	2	3	4	$\bar{X}$	S.D.
Des Moines (EK)	79.0%	62.9%	69.5%	71.4%	70.7%	6.7
Fort Worth (E1)	85.7	78.1	70.5	75.2	77.4	6.4
LaFayette (E1)	79.0	71.4	87.6		79.4	8.1
Lakewood (EK)	78.1	74.3	76.2	79.0	76.9	2.1
Newark (EK)	57.1	54.0	56.2	54.3	55.4	1.5
Lincoln (EK)	89.5	88.6	74.3	81.0	83.3	7.1
Sponsor Scores (N=23):					73.6%	10.7
NFT Scores (N=35):					61.8	7.0

$t = 4.99$

$p < .001$

$f = 11.76$

$p < .001$

	Third Grade					
	Classroom Scores				Site Scores	
Sites	1	2	3	4	$\bar{X}$	S.D.
Des Moines (EK)	65.7%	52.4%	53.3%	75.2%	61.7%	10.9
Fort Worth (E1)	66.7	80.0	82.9	84.8	78.6	8.2
LaFayette (E1)	68.6	71.4	73.3	87.6	75.2	8.5
Lakewood (EK)	76.2	78.1	76.2	73.3	76.0	2.0
Newark (EK)	61.9	63.8	67.6	63.8	64.3	2.4
Lincoln (EK)	77.1	75.2	78.1	81.9	78.1	2.8
Sponsor Scores (N=24):					72.3%	9.1
NFT Scores (N=36):					60.7	9.3

$t = 4.77$

$p < .001$

$f = 4.75$

$p < .01$

rows. The total number of classrooms receiving a particular implementation score, as well as the percentage computed, is entered on the bottom rows. Only a few critical variables will be discussed in this text.

For example, Table 24 indicates that compared to Non-Follow Through, University of Arizona third grade children were more often allowed to choose their own seating and grouping (15 classrooms are in the fourth or fifth quintile). Games and other play equipment were present in more University of Arizona first grades than comparison classrooms (20 of their 23 classrooms are in the fourth or fifth quintile). Seventeen of the 24 third-grade classrooms were in the fourth or fifth quintile (Table 25).

Findings shown in Table 26 indicate how much more emphasis the traditional comparison classroom places on arithmetic. This variable assesses the frequency of occurrence and the number of children involved in arithmetic. Over 82% of the first and 88% of the third grade classrooms using the University of Arizona model scored in the first or second quintile on this variable. However, this is likely to be an underestimate of the time the children engage in reading or math, since the basic skills are used to cook, bake, and construct. For example, children reading recipes and measuring ingredients would be coded in cooking rather than in reading or math. Also, the reader is reminded that the day-to-day variability of this variable was quite large for both first and third grades, suggesting that the variable is not very stable (see p. 54).

The University of Arizona does not emphasize any single activity but rather encourages an interdisciplinary program where several activities can occur at one time and basic skills can be learned by participation in all of these. Results in Table 27 denote success in this effort. Nineteen of the 23 first grade classrooms have an implementation score of 4 or 5 and 21 third grade classrooms have a score of 4 or 5.

Results shown in Tables 28 and 29 indicate that at University of Arizona sites, teachers more often work with small groups (92% in third grade have an implementation score of 5) and children are independent more often than comparison children (over 70% in both first and third grades have implementation scores of 4 or 5).

The frequency of children asking questions ranges within sites and among sites (see Table 30). Lakewood has all of its first and third grades scoring either a 4 or 5 on implementation of this variable, and all of the Lincoln third grades have an implementation score of 5.

Having adults ask children open-ended questions is important to the model, since it describes an attempt to extend children's thinking. Table 31 reflects a wide range of implementation scores. All of the University of Arizona first grades at Des Moines received the highest implementation score. Three of the third grades received a high

Table 24

CHILD SELECTION OF SEATING AND WORK GROUPS (Variable 24)--UNIVERSITY OF ARIZONA

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Glassrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Des Moines, Iowa		1	3					3	1	
Fort Worth, Texas			1		3				3	1
LaFayette, Georgia		3					1	1	2	
Lakewood, N.J.			1		3				3	1
Newark, N.J.		2	1		1		3	1		
Lincoln, Nebraska					4				1	3
Total classrooms		6	6		11		4	5	10	5
Percent of classrooms		26%	26%		48%		17%	21%	42%	21%

Table 25

GAMES, TOYS, PLAY EQUIPMENT PRESENT (Variable 25)--UNIVERSITY OF ARIZONA

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Des Moines, Iowa					4				4	
Fort Worth, Texas					4					4
LaFayette, Georgia					3			2		2
Lakewood, N.J.					4					4
Newark, N.J.	1		1	1	1		2	1	1	
Lincoln, Nebraska			1	1	2		1	1		2
Total classrooms	1		2	2	18		3	4	5	12
Percent of classrooms	4%		9%	9%	78%		13%	17%	21%	50%

Table 26

NUMBERS, MATH, ARITHMETIC (Variable 66)--UNIVERSITY OF ARIZONA

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Des Moines, Iowa		2	1	1		1			2	1
Fort Worth, Texas	1	3				2	2			
LaFayette, Georgia		2		1		3	1			
Lakewood, N.J.	2	2				3	1			
Newark, N.J.	1	3				2	2			
Lincoln, Nebraska		3			1	4				
Total classrooms	4	15	1	2	1	15	6		2	1
Percent of classrooms	17%	65%	4%	9%	4%	63%	25%		8%	4%

Table 27

WIDE VARIETY OF ACTIVITIES, OVER ONE DAY (Variable 83)--UNIVERSITY OF ARIZONA

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Des Moines, Iowa				2	2		2			2
Fort Worth, Texas					4					4
LaFayette, Georgia	1				2					4
Lakewood, N.J.					4				1	3
Newark, N.J.	2	1		1				1	1	2
Lincoln					4					4
Total classrooms	3	1		3	16		2	1	2	19
Percent of classrooms	13%	4%		13%	70%		8%	4%	8%	79%

Table 28

TEACHER WITH SMALL GROUP (Variable 88)--UNIVERSITY OF ARIZONA

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Des Moines, Iowa				3	1				1	3
Fort Worth, Texas				1	3					4
LaFayette, Georgia					3					4
Lakewood, N.J.			1		3			1		3
Newark, N.J.	2	1		1						4
Lincoln, Nebraska					4					4
Total classrooms	2	1	1	5	14			1	1	22
Percent of classrooms	9%	4%	4%	22%	61%			4%	4%	92%

Table 29

ONE CHILD INDEPENDENT (Variable 114)--UNIVERSITY OF ARIZONA

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Des Moines, Iowa		1	1		2			2	1	1
Fort Worth, Texas				1	3				1	3
LaFayette, Georgia					3		1		2	1
Lakewood, N.J.				2	2				1	3
Newark, N.J.	2	1	1				1	2	1	
Lincoln, Nebraska				2	2					4
Total classrooms	2	2	2	5	12		2	4	6	12
Percent of Classrooms	9%	9%	9%	22%	52%		8%	17%	25%	50%

Table 30

CHILD QUESTIONS TO ADULTS (Variable 350a)--UNIVERSITY OF ARIZONA

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Des Moines, Iowa	3	1				2		1	1	
Fort Worth, Texas				1	3			2		2
LaFayette, Georgia				3				1	2	1
Lakewood, N.J.				2	2				3	1
Newark, N.J.		1	3					1	1	2
Lincoln, Nebraska			1		3					4
Total classrooms	3	2	4	6	8	2		5	7	10
Percent of classrooms	13%	9%	17%	26%	35%	8%		21%	29%	42%

Table 31

ADULT OPEN-ENDED QUESTIONS TO CHILDREN (Variable 452a)--UNIVERSITY OF ARIZONA

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Des Moines, Iowa					4		1			3
Fort Worth, Texas	1	1		2				2	2	
LaFayette, Georgia				1	2				1	3
Lakewood, N.J.					4			1	2	1
Newark, N.J.		3	1				1	3		
Lincoln, Nebraska				1	3		1		1	2
Total classrooms	1	4	1	4	13		3	6	6	9
Percent of classrooms	4%	15%	4%	17%	57%		13%	25%	25%	38%

score, but one third grade scored only 2. Lakewood also had all University of Arizona first grades with an implementation score of 5. Overall, 74% of the first grades at University of Arizona sites received an implementation score of 4 or 5 on Var. 452a, and 63% of the third grades received an implementation score of 4 or 5.

When adults ask children questions, it is important to the University of Arizona model that children not only respond but that they also extend their response beyond a simple "yes" or "no." Table 32 presents data which indicates that children in University of Arizona first grades other than Newark, more often extend their answers when replying to questions than do comparison Non-Follow Through children. Des Moines, Ft. Worth, and LaFayette also have third grade classrooms in the fourth or fifth quintile.

Table 32

CHILD'S EXTENDED RESPONSE TO QUESTIONS (Variable 454a)--UNIVERSITY OF ARIZONA

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
Des Moines, Iowa					4				2	2
Fort Worth, Texas				1	3		1	1		2
LaFayette, Georgia			1		2			1	1	2
Lakewood, N.J.				4			2	2		
Newark, N.J.	4					3	1			
Lincoln, Nebraska			1	1	2		1	2	1	
Total classrooms	4		2	6	11	3	5	6	4	6
Percent of classrooms	17%		9%	26%	48%	13%	21%	25%	17%	25%

Discussion of a topic is an important learning method and process to the University of Arizona model; i.e., one learns through discussion of a subject, and learning to communicate ideas is an important skill. Table 33 presents data regarding the task-related comments of children. Overall, 61% of the first grades and 46% of the third grades have implementation scores of 4 or 5 on Var. 456a. Fort Worth has all first and third grades in the fifth quintile. Newark's first and third grades are in the first and second quintiles on this variable.

Table 33

ALL CHILD TASK-RELATED COMMENTS (Variable 456a)--UNIVERSITY OF ARIZONA

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
Des Moines, Iowa				3	1	3		1		
Fort Worth, Texas					4					4
LaFayette, Georgia			1		2		1		2	1
Lakewood, N.J.	1	3					2	1	1	
Newark, N.J.	4					3	1			
Lincoln, Nebraska				2	2			1	3	
Total classrooms	5	3	1	5	9	6	4	3	6	5
Percent of classrooms	22%	13%	4%	22%	39%	25%	17%	13%	25%	21%

e. Summary of Implementation

There is considerable deviation reported within sites and among sites for the University of Arizona model than for most other sponsors. LaFayette contributed more than other sites to this deviation at both first and third grades. Lakewood is well implemented at both grade levels. There is slight deviation between classrooms, and the total site implementation score is at the upper end of the scale. Other sites (Des Moines, Fort Worth, LaFayette, and Lincoln) have high implementation scores but more within site deviation among classroom scores. Newark has very little deviation between classrooms in either the first or third grades; however, their total implementation scores are very low when compared to the Non-Follow Through total implementation scores on the University of Arizona variables.

The reader is reminded that a sponsor's implementation is evaluated in two ways: (1) Do the sponsor's classrooms differ from the traditional classroom? and (2) Are a given sponsor's classrooms similar to each other in level of implementation?

Thus we conclude that Lakewood is implemented according to both criteria, while Des Moines, Fort Worth, LaFayette, and Lincoln are implemented according to the first criterion and Newark is implemented according to the second criterion.

3. Bank Street College of Education Approach

a. Description of the Model

The teacher in a Bank Street classroom creates a learning environment which is both challenging and supportive. There are opportunities for varied experiences and many options for learning: The teacher meets with the whole class to share experiences and to plan the day's activities. She works primarily with individual children or small groups. Even in a group activity she always has the individual children in mind. When she is not actively engaged in a group activity, the teacher moves about the room analyzing children's work at various learning centers, stopping to elicit ideas from individuals or groups of children, exchanging comments about the task, helping children extend and build upon their ideas, or acknowledging their progress in specific terms.

The assistant, who is a paraprofessional, is a cooperative member of the teaching team, and participates in various learning activities that have been planned jointly with the teacher. The role of the assistant is very similar to that of the teacher in that both work with children on a one-to-one basis or in small groups in order to stimulate and extend learning.

The child in a Bank Street classroom is expected to take an active role in his learning. He can choose learning activities and use of materials. He can also participate in large and small group experiences planned by or with adults, such as discussions, story telling, or use of Cuisenaire rods. However, most of the child's activities do not require adult direction but are enhanced by adult response, support, recognition, and extension. Independent activities may be engaged in by the child individually or cooperatively with one or more other children. In general, academic experiences (reading, writing, computing) are integrated functionally into classroom activities such as cooking, experimenting with science equipment and making things (e.g., creative stories, woodwork). However, texts and workbooks are used occasionally. The child is encouraged to use language throughout the day. He questions and exchanges comments with his peers and the adults in the classroom, which are viewed as revealing his ability to think, to reason, and to express himself with positive affect. The program emphasis is on having the child experience work at first hand.

b. Description of the Sites

The five Bank Street sites are Brattleboro, Vermont; Fall River, Massachusetts; New York City; Philadelphia; and Tuskegee, Alabama. Demographic and other information describing the communities in which the Follow Through projects are located, some taken from U.S. Census data and some from Follow Through sources, is presented for the five Bank Street sites in Table 34.

Table 34

SITE AND DEMOGRAPHIC DATA FOR BANK STREET COLLEGE SITES

A. Geographic Data

Site Code	Site Location	Region	Metropolitan Status	Population (1970 census)
0502	Brattleboro, Vermont	North East	Small city*	12,239
0504	Fall River, Mass.	North East	Medium city	96,898
0506	New York City, P.S. 243K	Middle Atlantic	Big city	7,894,798
0508	Philadelphia II, Pa.	Middle Atlantic	Big city	1,948,609
0510	Tuskegee, Ala.	East South Central	Small city*	11,028

B. Demographic Data for Total Population

Site Name	Median Family Income	Percent of Families Below Poverty Level	Percent of Population Nonwhite	Percent of Adults Over 25 Who Finished High School
Brattleboro	$9,938	6.6%	0.6%	59.7%
Fall River	8,289	10.8	1.0	25.6
NYC P.S. 243K	9,682	11.5	23.4	46.9
Philadelphia II	9,366	11.2	34.4	39.9
Tuskegee	7,000	23.5	88.2	59.7
Average for all sites	$8,631	13.9%	20.7%	49.7%

C. Characteristics of the Follow Through Evaluation Sample at the Site for First Grade**

Site Name	Average Percent with Preschool	Average Percent with First Language Other than English	Average Baseline Score
Brattleboro	27%	0%	27
Fall River	36	34	24
NYC P.S. 243K	47	0	33
Philadelphia II	30	0	28
Tuskegee	74	0	--

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*Not within Standard Metropolitan Statistical Area (SMSA)

**Taken from the Follow Through Roster; represents the Follow Through evaluation sample.

Sources: U.S. Bureau of the Census, 1970; SRI

Brattleboro and Tuskegee are both small cities; Brattleboro is in New England while Tuskegee is in the deep South. Both sites have a high percent (59.7%) of adults who have completed high school and neither site has children who speak English as a second language. However, the two sites are diverse in other respects. Brattleboro's $9,938 median family income is higher than the average for Follow Through, while Tuskegee's median family income of $7,000 is considerably below the Follow Through sample's average. Following naturally from their different median incomes, Brattleboro's 6.6% of families below poverty level* is among the lowest in the sample; while Tuskegee's 23.5% of poverty families is among the highest. The largest difference between the two sites occurs in their nonwhite populations: Brattleboro's nonwhite population is 0.6% (the lowest of the Bank Street sites), whereas Tuskegee's is 88.2% (the highest).

The demographic data for New York City and Philadelphia, both large Eastern cities, are quite similar. Their median family incomes differ by only $300 and are above the average for Follow Through; their percent of families below poverty level is almost identical and slightly lower than the Follow Through average. Although the nonwhite populations of the cities differ by 11%, both cities have approximately 98% black children in their Follow Through classrooms.

Fall River is a medium-sized New England industrial city. It has a large Portuguese-speaking population which is reflected in the fact that 34% of the children in the Follow Through sample do not speak English as a first language. The entering baseline tests are lower than other sites. This may be a result of not having English as a first language since the tests are all conducted in English.

c. Sponsor Implementation Variables

The variables selected to assess implementation of the Bank Street model can be found in Appendix M. The tables in Appendix M present the implementation score for each variable for each classroom. As described in the methodology section of this chapter, the final selection of variables was made on the basis of sponsor ratings reported on the Sponsor Variable Questionnaire. How the implementation scores were computed is also described in the methodology section on page 100. Since the aim of sponsors was to provide programs that differ in specific ways from traditional classrooms, the traditional classroom has been used as the standard yardstick to measure each sponsor's implementation. Twenty-seven variables were selected by Bank Street as those on which they would expect their classrooms to differ from conventional classrooms. An implementation score of 3 would indicate that the classroom was in the mid-range of conventional classrooms; an implementation score of 5 would mean that the model classrooms were in the uppermost range of conventional classrooms. The variables selected for the Bank Street model are of course limited descriptors of the program. Many processes and procedures of the program are not assessed in this study of implementation. For example, the classroom adults are expected to elicit ideas from children and help them extend ideas. Our variables are a rough approximation of whether this is occurring. We have a variable which reports the frequency of adults asking open-ended questions and another which reports how often the children extend responses, and another which reports how often adults respond to children's questions with another question. All three of the variables may be indicators of the desired process, but by no means provide a complete assessment of the goal.

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*The U.S. Census Bureau uses the U.S. Office of Economic Opportunity poverty index guidelines to establish poverty level.

A selection of variables that are considered by the sponsor to be critical to the implementation of the Bank Street model are discussed in the text. Tables of all other critical variables are presented in Appendix M.

d. Implementation Findings

Figure 27 and Table 35 present the total implementation scores for each classroom by grade level. These total scores were computed by adding each quintile score of Bank Street's 27 implementation variables and dividing by the total maximum score. Thus, an average score on all variables was computed. The scores are presented as percentages. Total scores for Non-Follow Through classrooms were also computed for the Bank Street implementation variables. Means and standard deviations are presented in Table 35, along with the results of one-tailed t-tests, comparing Non-Follow Through with Bank Street classrooms. Table 35 presents an analysis of variance among sites.

As the t-tests indicate, the Bank Street classrooms overall implementation scores differ significantly from the Non-Follow Through classrooms. However, six of the nineteen third grade implementation scores are approximately the same as the Non-Follow Through third grade mean score and the third grade mean score in Philadelphia is only two points above the Non-Follow Through mean. Histograms presented in Figure 27 illustrate the overlap in Bank Street and Non-Follow Through scores. The analysis of variance indicates that the deviation in implementation scores among sites is not different from the deviation of implementation scores within sites. The deviation within sites is greatest in the Fall River first grades (7.5) and the Tuskegee third grades (8.1). The least deviation within a site is in the Tuskegee first grades (2.0) where the implementation score is also high.

Scores for each critical implementation variable for each Bank Street site and classroom are presented in Appendix M, Table M-4 in tabular form. The tables are prepared so that the number of classrooms receiving a particular implementation score is entered in a column. The classrooms from each site are shown across the rows. The total number of classrooms receiving a particular implementation score, as well as the percentage computed, is entered on the bottom rows. Only a few selected variables will be discussed in this text.

In Table 36, all first grades have an implementation score of 4 or 5 on Var. 25 (Toys, games, play equipment present). Apparently, New York City third grade classrooms did not make as much use of this type of equipment as did third grades at other sites.

Table 36

GAMES, TOYS, PLAY EQUIPMENT PRESENT (Variable 25)--BANK STREET

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
Brattleboro, Vermont					3					3
Fall River, Mass.				1	3				2	2
NYC P.S. 243K				2	2		2	2		
Philadelphia II, Pa.				1	3				1	3
Tuskegee, Ala.					4				2	2
Total classrooms				4	15		2	2	5	10
Percent of classrooms				21%	79%		11%	11%	26%	53%

One goal of the Bank Street program is to provide a multidisciplinary program. Such a program is reflected in Variable 83 (Wide variety of activities, over one day). Table 37 indicates that 89% of the Bank Street first grades and 79% of the third grades have a score of 4 or 5 on this variable.

The findings presented in Table 38 indicate that the conventional classroom is more likely than a Bank Street classroom to have children engaged in formal math during the day. However, this variable does not include the more informal math which might be learned during such activities as cooking, sewing, or carpentry. Therefore, the number of Bank Street children engaged in some form of math may be underestimated.

Bank Street teachers appear to interact with children in small groups more often than teachers in conventional classrooms (see Table 39). On this variable, 89% of the first grades have an implementation score of 4 or 5 and 79% of the third grades have the highest possible score of 5.

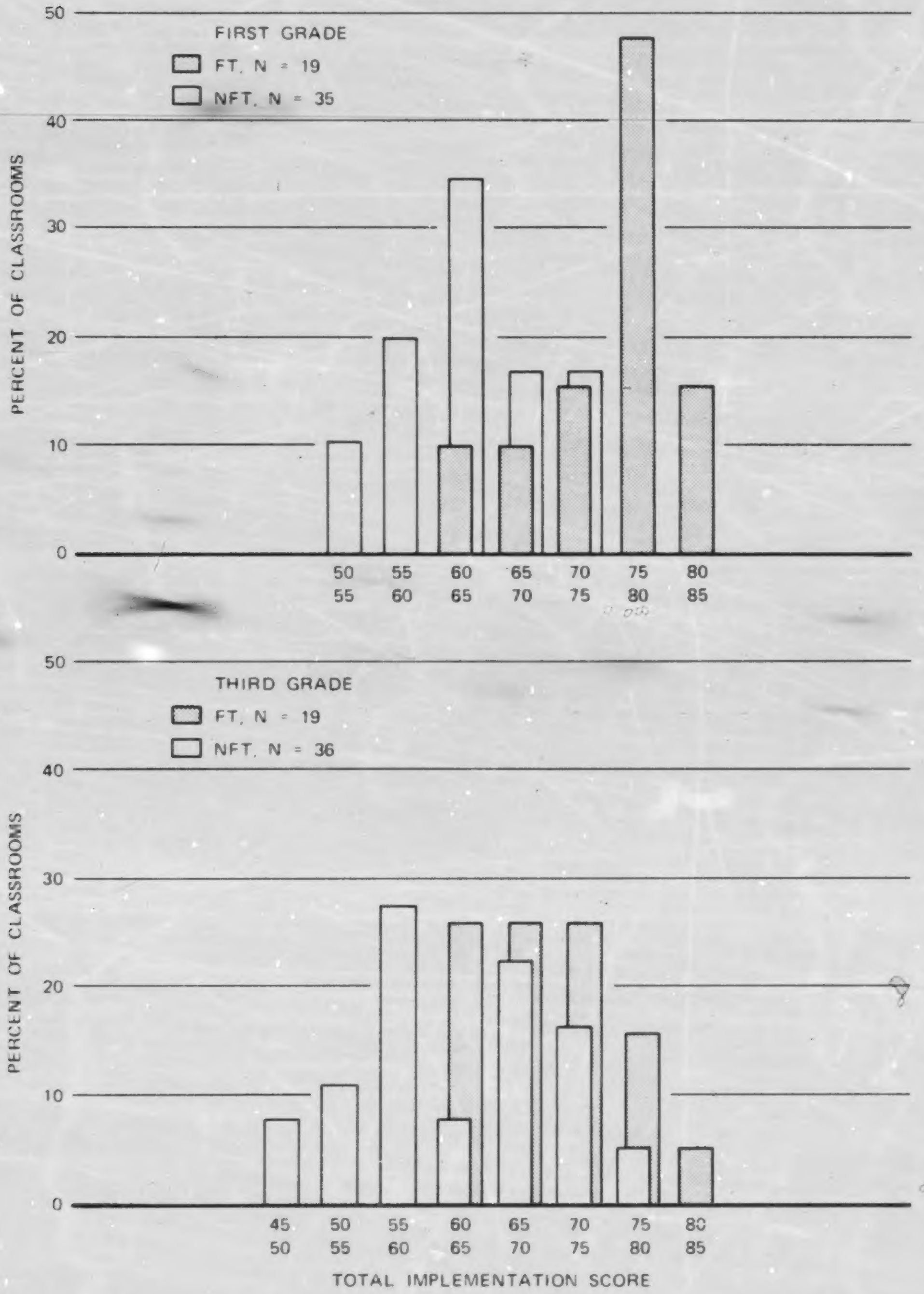

FIGURE 27 HISTOGRAM SHOWING IMPLEMENTATION SCORES FOR BANK STREET COLLEGE

Table 35

TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS BY SITE--BANK STREET

		First Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Brattleboro	(EK)	64.4%	74.1%	68.9%	%	69.1%	4.8
Fall River	(EK)	80.7	75.6	71.1	63.0	72.6	7.5
NYC P.S. 243K	(EK)	78.5	74.8	77.0	67.4	74.4	4.9
Philadelphia II	(EK)	77.8	82.6	78.5	77.0	79.0	2.5
Tuskegee	(E1)	80.0	78.5	75.6	76.3	77.6	2.0
Sponsor Scores (N=19):						74.8%	5.5
NFT Scores (N=35):						62.7	6.2

$t = 7.12$

$p < .001$

$f = 2.37$

$p <$ NS

		Third Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Brattleboro	(EK)	75.6%	74.8%	71.1%	%	73.8%	2.4
Fall River	(EK)	61.5	68.9	68.9	71.1	67.6	4.2
NYC P.S. 243K	(EK)	62.2	68.9	77.8	69.6	69.6	6.4
Philadelphia II	(EK)	63.0	65.2	60.0	70.4	64.6	4.4
Tuskegee	(E1)	70.4	81.5	77.0	63.0	73.0	8.1
Sponsor Scores (N=19):						69.5%	6.0
NFT Scores (N=36):						62.4	8.6

$t = 3.20$

$p < .001$

$f = 1.71$

$p <$ NS

Table 37

WIDE VARIETY OF ACTIVITIES, OVER ONE DAY (Variable 83)--BANK STREET

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Brattleboro, Vermont					3					3
Fall River, Mass.			1		3		2			2
NYC P.S. 243K				2	2				1	3
Philadelphia II, Pa.			1		3					4
Tuskegee, Ala.				3	1		1	1	2	
Total classrooms			2	5	12		3	1	3	12
Percent of classrooms			11%	26%	63%		16%	5%	16%	63%

Table 38

NUMBERS, MATH, ARITHMETIC (Variable 66)--BANK STREET

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Brattleboro, Vermont	1	1	1			1	2			
Fall River, Mass.	4							3	1	
NYC P.S. 243K	2	1		1		2			1	1
Philadelphia II, Pa.		1	1	2		1	2	1		
Tuskegee, Ala.				1	3		2		1	1
Total classrooms	7	3	2	4	3	4	6	4	3	2
Percent of classrooms	37%	16%	11%	21%	16%	21%	32%	21%	16%	11%

Table 39

TEACHER WITH SMALL GROUP (Variable 88)--BANK STREET

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Brattleboro, Vermont	1		1	1				1		2
Fall River, Mass.				3	1					4
NYC P.S. 243K				1	3				1	3
Philadelphia II, Pa.				2	2		1			3
Tuskegee, Ala.				2	2		1			3
Total classrooms	1		1	9	8		2	1	1	15
Percent of classrooms	5%		5%	47%	42%		11%	5%	5%	79%

Children in Bank Street first grades also receive considerably more individual attention from aides (Table 40) than do children in conventional classrooms. Overall, 90% of these classrooms are in the fourth or fifth quintile. While 40% of the Non-Follow Through classrooms have mean scores of zero, none of the Bank Street sites, whether at first or third grade, have mean scores of zero (see Appendix O for means).

Children in Bank Street classrooms often work independently in small groups. Findings presented in Table 41 indicate that 64% of the first and 79% of the third grades have an implementation score of 4 or 5. (See Appendix M, Table M-4 for other tables regarding child independence.)

Perhaps to encourage their inquiring, first grade children are asked open-ended questions by adults more often in Bank Street classrooms than in conventional ones (see Table 42). Fourteen out of 19 first grade classrooms scored 4 or 5 on this variable. Bank Street's third grades are more evenly distributed across the implementation scores.

It is also important to the Bank Street model that children ask questions. This is an important part of the learning process. Data presented on Table 43 indicate that 58% of the first grades have implementation scores of 4 or 5. Of the third grades, 37% are in the fourth quintile but none are in the fifth quintile. The children at Brattleboro were observed to be asking questions more often than children at other sites.

Table 40

AIDE WITH ONE CHILD (Variable 92)--BANK STREET

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1*	2*	3	4	5	1*	2	3	4	5
Brattleboro, Vermont			1		2				3	
Fall River, Mass.			1		3		2		2	
NYC P.S. 243K				2	2		1		3	
Philadelphia II, Pa.				2	2		1		3	
Tuskegee, Ala.				2	2		1	2	1	
Total classrooms			2	6	11		5	2	12	
Percent of classrooms			11%	32%	58%		26%	11%	63%	

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*In first grade, 40% of the Non-Follow Through classrooms (the two lowest quintiles) had a mean of zero while in third grade 20% of the Non-Follow Through classrooms (the lowest quintile) had a mean of zero. No Bank Street site had a mean of zero.

Table 41

SMALL GROUP OF CHILDREN INDEPENDENT (Variable 116)--BANK STREET

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Brattleboro, Vermont			1	1	1			1	2	
Fall River, Mass.					4				1	3
NYC P.S. 243K				2	2				1	3
Philadelphia II, Pa.			1	1	2	1		1	1	1
Tuskegee, Ala.			2	1	1	1			1	2
Total classrooms			4	5	10	2		2	6	9
Percent of classrooms			21%	26%	53%	11%		11%	32%	47%

Table 42

ADULT OPEN-ENDED QUESTIONS TO CHILDREN (Variable 452a)--BANK STREET

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Brattleboro, Vermont				1	2		1	2		
Fall River, Mass.	1			3				2		
NYC P.S. 243K			1	1	2			1	1	2
Philadelphia II, Pa.	1			1	2		1	2	1	
Tuskegee, Ala.	2			2			2		1	1
Total classrooms	4		1	8	6		4	7	3	5
Percent of classrooms	21%		5%	42%	32%		21%	37%	16%	26%

Table 43

CHILD QUESTIONS TO ADULT (Variable 350a)--BANK STREET

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Brattleboro, Vermont				1	2				3	
Fall River, Mass.			1	2	1	4				
NYC P.S. 243K	3	1				3	1			
Philadelphia II, Pa.			2	1	1				4	
Tuskegee, Ala.			1	1	2	1	1	2		
Total classrooms	3	1	4	5	6	8	2	2	7	
Percent of classrooms	16%	5%	21%	26%	32%	42%	11%	11%	37%	

e. Summary of Implementation

For the most part, Bank Street sites do not differ very much from each other in the degree of implementation. The greatest difference is seen in the third grade where Tuskegee and Brattleboro have scores of 73 and Philadelphia has a score of 64. The variance among sites is not, however, greater than the variance within sites. The greatest within site variation is found in Fall River first grades and Tuskegee third grades. Overall the Bank Street classrooms do differ significantly from Non-Follow Through classrooms (with the exception of Philadelphia third grades).

A study of observer accuracy for Bank Street indicates that in general the codes which form the variables used in this section were acceptably reliable (see Appendix L, Table L-3). There is one exception. The third grade observer from Fall River had difficulty coding direct questions from the videotape. This is reflected in the fact that all Fall River third grades are in the first quintile on a variable which uses this code (see Table 43).

The reader is reminded that a sponsor's implementation is evaluated in two ways: (1) Do sponsor's classrooms differ from the traditional classroom? and (2) Are a given sponsor's classrooms similar to each other in level of implementation? The classrooms differ 5 points from Non-Follow Through in 17 out of 19 first grades and 13 out of 19 third grades. Those instances of low classroom implementation scores are scattered over several sites. An analysis of variance indicated that the difference between sites is not greater than the difference within sites. Fall River first grades and Tuskegee third grades evidenced the most variance within sites.

4. Englemann-Becker Model for Direct Instruction, University of Oregon

a. Description of the Model

The Englemann-Becker model is a highly structured academic program based on the premise that with proper instruction and consistent reinforcement, any child can master the skills necessary to bring him up to the achievement level of national norms for his age group.

The model uses programmed reading, math, language, and science materials which they have developed. Highly specific methods are used to teach concepts and skills required for mastering sequenced tasks oriented toward an increasing level of competence. Desired behaviors are systematically reinforced by praise and enthusiastic acknowledgment. Teachers and students share the pleasure of each other's achievements. Unproductive or antisocial behavior is ignored or stopped by a short reprimand. Ignoring is intended to withdraw from the behavior the attention that often reinforces it. When this is true, ignoring will eventually extinguish the behavior.

The classroom is usually staffed with two or three adults (regular teacher and one or two full-time aides recruited from the Follow Through parent community) for every 25 to 30 children. Each adult has been carefully trained. In most cases the adults teach a single subject. Working very closely with a small or large group of children, each teacher and aide uses the programmed materials in combination with predefined teaching strategies. A task is presented by the teacher. A demonstration is usually given and performance of the task by the children is tested. When the children respond she provides immediate feedback. She proceeds only when each child is successful with a given instructional unit. When the children have completed their lessons with one adult, they proceed to their next subject with a different adult.

b. Description of the Sites

The University of Oregon project sites are East St. Louis, Illinois; New York City; Racine, Wisconsin; Tupelo, Mississippi; and Providence, Rhode Island. Demographic and other information describing the five communities in which the University of Oregon projects are located (taken from U.S. Census Bureau reports and Follow Through sources) is shown in Table 44.

Tupelo is the only one of the University of Oregon project sites in this study that is located outside of a metropolitan area; it is also the only University of Oregon site that has a higher percent of adults in the community who have completed high school than the Follow Through sample average.

Racine's $10,526 median family income is higher than the other University of Oregon sites and is, in fact, higher than any other site in the observation sample; its 6.6% of families below poverty level* is among the lowest over all sites.

The East St. Louis median family income of $6,654 is among the lowest in the sample, and, similarly, the 28.5% of families below the poverty level is one of the highest percentages in the sample. The nonwhite population of East St. Louis is 69.3%, a considerably higher percentage than all but one of the project sites in the Follow Through sample.

New York City is the only large city in the University of Oregon sample. Its $9,682 median family income is above the sample average and its 11.5% of below poverty level families is about average compared to the other sites. New York City's nonwhite population of 23.4% is slightly above the average for all Follow Through sites. It should be noted that this figure reflects all of New York City: The University of Oregon classrooms in New York are 95% black (see Tables 3 and 4).

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*The U.S. Census Bureau uses the U.S. Office of Economic Opportunity's poverty index guidelines to establish poverty level.

Table 44

SITE AND DEMOGRAPHIC DATA FOR UNIVERSITY OF OREGON SITES

A. Geographic Data

Site Code	Site Location	Region	Metropolitan Status	Population (1970 census)
0703	E. St. Louis, Ill.	West North Central	Medium city	69,996
0707	New York City, P.S. 137K	Middle Atlantic	Big city	7,894,798
0708	Racine, Wis.	East North Central	Medium city	95,162
0711	Tupelo, Miss.	East South Central	Small city*	20,471
0719	Providence, R.I.	North East	Medium city	179,213

B. Demographic Data for Total Population

Site Name	Median Family Income	Percent of Families Below Poverty Level	Percent of Population Nonwhite	Percent of Adults Over 25 Who Finished High School
E. St. Louis	$ 6,654	28.5%	69.3%	29.4%
NYC P.S. 137K	9,682	11.5	23.4	46.9
Racine	10,526	6.6	11.0	49.5
Tupelo	8,436	12.5	17.6	58.9
Providence	8,430	13.3	10.0	40.6
Average for all sites	$ 8,631	13.9%	20.7%	49.7%

C. Characteristics of the Follow Through Evaluation Sample at the Site for First Grade**

Site Name	Average with Preschool	Average Percent with First Language Other than English	Average Baseline Score
E. St. Louis	47%	0%	--
NYC P.S. 137K	43	2	29
Racine	75	9	--
Tupelo	63	0	--
Providence	97	0	26

---

[*] Not within Standard Metropolitan Statistical Area (SMSA).

[**] Taken from the Follow Through Roster; represents the Follow Through evaluation sample.

Sources: U.S. Bureau of the Census, 1970; SRI

Although Providence is a medium-sized city in a metropolitan setting, demographic data for Providence look surprisingly like those for Tupelo with respect to median family income and percent of families below poverty level. The nonwhite populations of the two sites differ by 7.6%, yet both are below the average for all project sites.

c. Sponsor Implementation Variables

Tables of all the critical variables selected to assess implementation of the University of Oregon model can be found in Appendix M. The tables in Appendix M describe the implementation score for each variable for each classroom. As described in the methodology section of this chapter, the final selection of variables was made on the basis of sponsor ratings reported in the Sponsor Variable Questionnaire. The variables selected for the University of Oregon model are of course limited descriptors of the program. Many processes and procedures important to the program are not assessed in this study of implementation.

How the implementation scores were computed is also described in the methodology section on page 100. Since the aim of the sponsors was to provide programs that differ in specific ways from traditional classrooms, the traditional classroom has been used as the standard yardstick to measure each sponsor's implementation. Sixteen critical variables were selected for first grade and 17 for third grade by University of Oregon as those on which they would expect their classrooms to be different from conventional classrooms. An implementation score of 3 would indicate the classroom was in the middle of the scale for the conventional classrooms; an implementation score of 5 would mean that the model classrooms were in the uppermost range of conventional classrooms. A selection of variables designated as critical by the sponsor are discussed in the text.

d. Implementation Findings

Figure 28 and Table 45 present the total implementation scores for each classroom by grade level. These total scores were computed by adding each quintile score of the University of Oregon's implementation variables and dividing by the total maximum score. Thus, an average score on all variables was computed. The scores are presented as percentages. Total scores for Non-Follow Through classrooms were also computed for the University of Oregon implementation variables. Means and standard deviations are presented in Table 45 along with the results of one-tailed t-tests, comparing Non-Follow Through classrooms with classrooms using the University of Oregon model. Table 45 presents the analysis of variance among sites.

As the t-test on Table 45 indicates overall the University of Oregon's classrooms are significantly different from the Non-Follow Through classrooms. The histograms on Figure 28 show that only

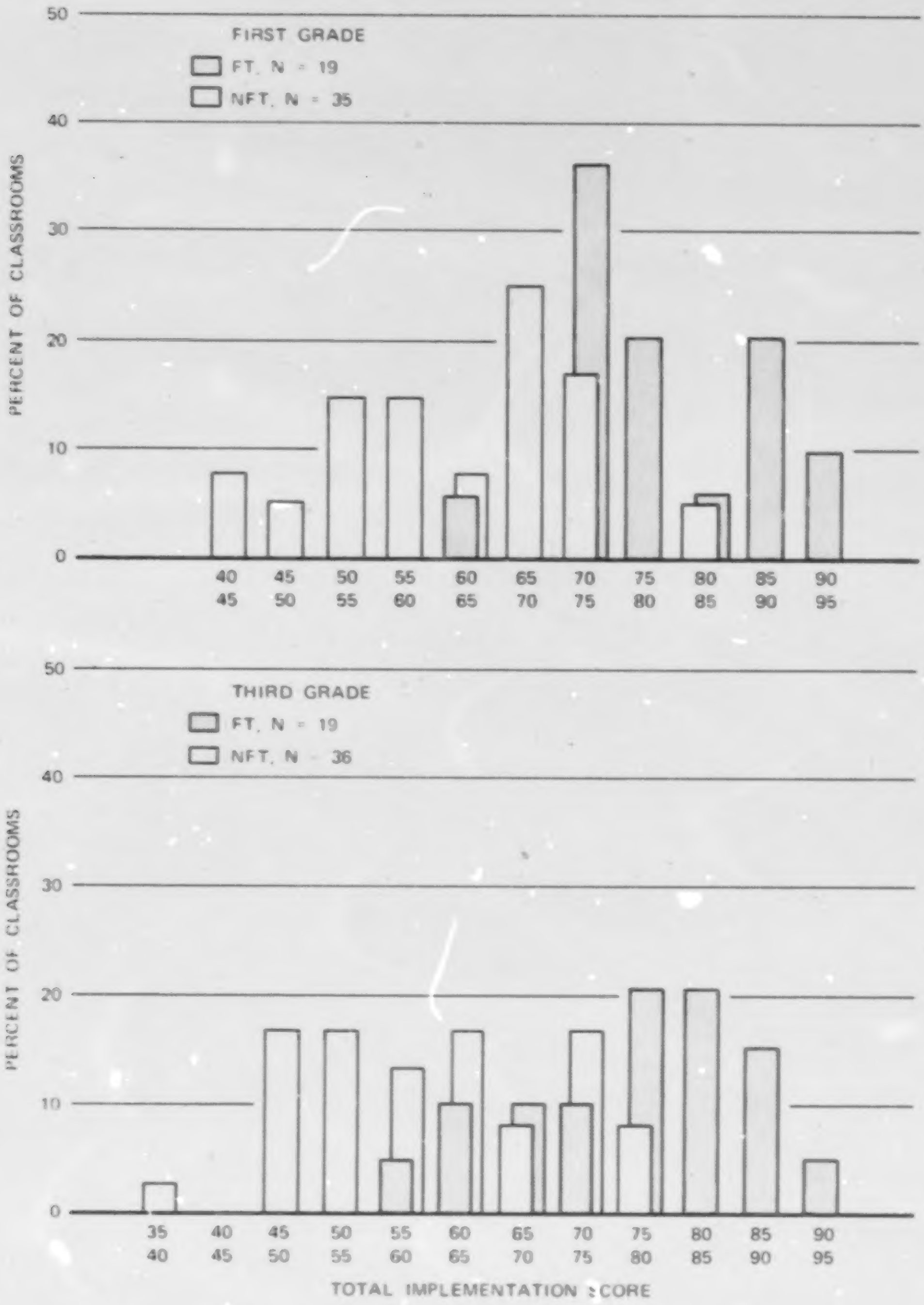

FIGURE 28 HISTOGRAM SHOWING IMPLEMENTATION SCORES FOR UNIVERSITY OF OREGON

Table 45

TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS BY SITE--UNIVERSITY OF OREGON

		First Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
E. St. Louis	(EK)	76.2%	62.5%	76.2%	75.0%	72.5%	6.7
NYC P.S. 137K	(EK)	88.7	90.0	91.2		90.0	1.3
Racine	(EK)	72.5	72.5	71.2	71.2	71.9	.7
Tupelo	(E1)	80.0	86.2	87.5	87.5	85.3	3.6
Providence	(EK)	72.5	77.5	72.5	73.7	74.1	2.4
Sponsor Scores (N=19):						78.2%	8.1
NFT Scores (N=35):						61.0	10.7

$t = 6.11$

$p < .001$

$f = 17.61$

$p < .001$

		Third Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
E. St. Louis	(EK)	76.5%	62.4%	78.8%	87.1%	76.2%	10.3
NYC P.S. 137K	(EK)	68.2	81.2	57.6		69.0	11.8
Racine	(EK)	71.8	62.4	84.7	85.9	76.2	11.2
Tupelo	(E1)	87.1	80.0	90.6	74.1	82.9	7.3
Providence	(EK)	75.0	82.4	78.8	69.4	76.4	5.5
Sponsor Scores (N=19):						76.5%	9.3
NFT Scores (N=36):						60.4	10.5

$t = 5.62$

$p < .001$

$f = .91$

p < NS

one Oregon first grade has a score lower than 70 while 25 Non-Follow Through classrooms have scores lower than 70. In the third grade only one Oregon classroom scored below the mean of Non-Follow Through.

The analysis of variance indicates that the among-site variance is greater than the within-site variance in the first grade. In the third grade the variance is as great within sites as among sites. The difference in New York is particularly great where one third grade has a low score of 57.6 and another has a high score of 81.2. A possible explanation may be that children in University of Oregon's New York third grades have had fewer months in Follow Through and the attrition rate is greater (see Table 4, p. 15). The standard deviation for third grades in St. Louis and Racine is also high. The standard deviation for the first grades at these same sites is considerably less. This difference between the grades might be explained by the fact that in the spring of the year in third grade when observations are conducted teachers are beginning to prepare the children for the fourth grade Non-Follow Through classrooms and they might not be adhering so strictly to University of Oregon's stated program.

Scores for each critical implementation variable for each University of Oregon site and classroom are presented in Appendix M, Table M-5 in tabular form. The tables are prepared so that the number of teachers receiving a particular implementation score is entered in a column. The number of teachers from each site is entered in the rows. The total number of teachers receiving a particular implementation score, as well as the percentage computed, is entered on the bottom rows. Only a few critical variables will be discussed in this text.

The University of Oregon program emphasizes the development of basic skills in reading and computation. Findings presented in Table 46 indicate that 90% of the first grade classrooms in the University of Oregon program often engage in arithmetic activities and are on the upper end of the scale when compared with traditional classrooms. While three third grade classrooms in East St. Louis and four classrooms in Tupelo have the highest implementation score, all but one third grade classroom in other sites are scattered across scores 2, 3, and 4. It must be noted that Tupelo is a site where children entered school in the first grade while at all other sites the children entered school in kingarten. (The reader is reminded that the data for this variable in third grade was not very stable from day to day, see Table 5, p. 54.)

As shown in Table 47, 63% of University of Oregon's third grade classrooms received the highest implementation score of 5 in reading and language development. The first grade implementation scores are scattered, with 47% obtaining a score of 3. This indicates that while first grades differ more from the traditional classrooms in how often children engage in math, the third grades differ more from the traditional classrooms in how often the children engage in reading.

For instructional purposes, University of Oregon children are placed in small groups. Findings presented in Tables 48 and 49 indicate that both teachers and aides in University of Oregon first and

Table 46

NUMBERS, MATH, ARITHMETIC (Variable 66)--UNIVERSITY OF OREGON

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
E. St. Louis, Ill.					4			1		3
NYC P.S. 137K					3		1	2		
Racine, Wis.				2	2			2	2	
Tupelo, Miss.				1	3					4
Providence, R.I.		2			2		2	1		1
Total classrooms		2		3	14		3	6	2	8
Percent of classrooms		11%		16%	74%		16%	32%	11%	42%

Table 47

READING, ALPHABET, LANGUAGE DEVELOPMENT (Variable 67)--UNIVERSITY OF OREGON

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
E. St. Louis, Ill.		1	1	2			1	1	1	1
NYC P.S. 137K				1	2	1			2	
Racine, Wis.			4							4
Tupelo, Miss.		1			3				1	3
Providence, R.I.			4							4
Total classrooms		2	9	3	5	1	1	1	4	12
Percent of classrooms		11%	47%	16%	26%	5%	5%	5%	21%	63%

Table 48

TEACHER WITH SMALL GROUP (Variable 88)--UNIVERSITY OF OREGON

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
E. St. Louis, Ill.	1				3		1		1	2
NYC P.S. 137K				1	2	1		1		1
Racine, Wis.					4	2			1	1
Tupelo, Miss.					4					4
Providence, R.I.					4					4
Total classrooms	1			1	17	3	1	1	2	12
Percent of classrooms	5%			5%	89%	16%	5%	5%	11%	63%

Table 49

AIDE WITH SMALL GROUP (Variable 94)--UNIVERSITY OF OREGON

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1*	2	3	4	5	1*	2*	3	4	5
E. St. Louis, Ill.			1	1	2					4
NYC P.S. 137K				1	2				2	1
Racine, Wis.					4			1	2	1
Tupelo, Miss.					4					4
Providence, R.I.				1	3				1	3
Total classrooms			1	3	15			1	5	13
Percent of classrooms			5%	16%	79%			5%	26%	68%

---

*Of the Non-Follow Through classrooms, 20% in the first grade (the lowest quintile) had a mean of zero and 40% in the third grade (the two lowest quintiles) had mean of zero. No University of Oregon site had a mean of zero.

third grade classrooms work more often with small groups of children than do teachers in comparison classrooms.

In general, in the University of Oregon program, after adults give instructions to the small group, they then ask a question regarding the information given. The children respond, and the adult provides immediate feedback. The findings for the variable representing this instructional pattern are dramatic in that 95% of the first grades and 100% of the third grades obtained the highest implementation score (see Table 50).

Table 50

CHILD GROUP RESPONSE TO ADULT ACADEMIC COMMANDS/REQUESTS OR DIRECT QUESTIONS* (Variable 363a)--UNIVERSITY OF OREGON

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
E. St. Louis, Ill.					4					4
NYC P.S. 137K					3					3
Racine, Wis.			1		3					4
Tupelo, Miss.					4					4
Providence, R.I.					4					4
Total classrooms			1		18					18
Percent of classrooms			5%		95%					100%

---

*The sponsor refers to this as "Direct Instruction."

Adult praise is used systematically when the child response is correct. The child always knows immediately if his answer is right or wrong. Table 51 indicates that first grades have 63% and third grades have 79% of their classrooms in the fourth and fifth quintile on this variable. All of Racine's classrooms are in the fifth quintile. Only the classrooms in East St. Louis appear atypical on this variable.

Children in University of Oregon classrooms use workbooks and textbooks designed or recommended by the sponsor. As shown in Table 52, 79% of the first grades have a high implementation score of 4 or 5. While 47% of the third grades also have implementation scores of 5, the

Table 51

ALL ADULT PRAISE TO CHILDREN (Variable 398a)--UNIVERSITY OF OREGON

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
E. St. Louis, Ill.	2	1	1				2		2	
NYC P.S. 137K		2		1				1	1	1
Racine, Wis.					4					4
Tupelo, Miss.					4		1		1	2
Providence, R.I.			1	2	1				1	3
Total classrooms	2	3	2	3	9		3	1	5	10
Percent of classrooms	11%	16%	11%	16%	47%		16%	5%	26%	53%

Table 52

TEXTS, WORKBOOKS/ACADEMIC ACTIVITIES (Variable 240)--UNIVERSITY OF OREGON

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
E. St. Louis, Ill.				2	2	3				1
NYC P.S. 137K				1	2		1		1	1
Racine, Wis.		1	1	2			1	1	2	
Tupelo, Miss.			2	2						4
Providence, R.I.				1	3				1	3
Total classrooms		1	3	8	7	3	2	1	4	9
Percent of classrooms		5%	16%	42%	37%	16%	11%	5%	21%	47%

other classrooms are scattered across all of the scores. Only Tupelo has all four third grade classrooms with implementation scores of 5.

e. Summary of Implementation

The reader is reminded that a sponsor's implementation is evaluated in two ways: (1) Do they differ from the traditional classroom? and (2) Are a given sponsor's classrooms similar to each other in level of implementation? Using the first criterion our findings indicate that University of Oregon classrooms are statistically different from Non-Follow Through classrooms.

By the second criterion the first grades are implemented. The greatest deviation between sites is found in New York City (90%) and Racine (71%). East St. Louis where one first grade has a score near to that of Non-Follow Through has the greatest within site variance. In third grade while all classrooms but one have scores higher than Non-Follow Through classrooms, there is great deviation within and among sites. One explanation offered is that the teachers have altered the program in preparation for the next year in Non-Follow Through fourth grades.

A study of observer accuracy for University of Oregon indicates that the codes which form the variables used in this section were acceptably reliable. (See Appendix L, Table L-4.)

5. Behavior Analysis Approach--University of Kansas

a. Description of the Model

The University of Kansas Behavior Analysis Approach aims at teaching children basic skills by means of systematic positive reinforcement of desired behavior. The model uses a token exchange system to provide an immediate reward to the child for successfully completing a learning task. Earned tokens can be exchanged later for special activities, such as participation in a spelling bee or a game of musical chairs, work on a puzzle, or play with blocks and trucks. Instruction (work time) and special activity (spend time) alternate throughout the day, with the amount of time spent on instruction increasing as the amount of reinforcement needed to sustain motivation decreases.

To encourage the child to move from external rewards to self-motivated behavior, more tokens are given during the initial stages of learning a task and progressively fewer are given as the child gains skills and takes pleasure in the skill. Similarly, fewer tokens are given as the child progresses through the grades.

The program emphasizes individualized instruction based on sequenced learning materials. The curriculum materials include a description of the behavior a child should be capable of at the end of a learning sequence, and clearly provide criteria for judging a correct response.

Small groups formed for reading instruction are directed by the teacher. A full-time trained aide provides math instruction. Spelling and handwriting are taught by another aide. Individual tutoring is provided by parent aides. Although children in this model are in small groups, they receive adult attention on a one-to-one basis.

The curriculum materials also provide for periodic testing and monitoring of achievement gains. A system of careful record keeping allows the teacher to keep a close watch on each child's progress and to tailor the curriculum to each child's needs.

b. Description of the Sites

The University of Kansas' five project sites are New York City; Philadelphia; Portageville, Missouri; Kansas City, Missouri; and Louisville.

Demographic and other information describing the communities in which the University of Kansas Follow Through projects are located is presented in Table 53. Four of the University of Kansas sites are classified by population and location as large cities in metropolitan settings; the fifth site, Portageville, is classified as outside of a metropolitan area (its population is only 3,000 and it is located in southeast Missouri).

While the four metropolitan sites show only slight differences in median family income and percentages of below poverty level* families, and cluster in both categories around the sample average, Portageville's median family income ($5,913) and its 30.4% of families below poverty level distinguish it from the other sites and from the average of the Follow Through sample.

The data presented for the nonwhite population indicate that Philadelphia, with its 34.4% of population nonwhite, is considerably different from the other University of Kansas sites. However, all of the sites but one have a greater percent of nonwhites than the 20.7% Follow Through average. Four of the five sites have proportionately fewer adults over 25 who have completed high school than the 49.7% average for the Follow Through sites.

c. Sponsor Implementation Variables

Tables of all the critical variables selected to assess implementation of the University of Kansas model can be found in Appendix

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*The U.S. Census Bureau uses the U.S. Office of Economic Opportunity poverty index guidelines to establish poverty level.

Table 53

SITE AND DEMOGRAPHIC DATA FOR UNIVERSITY OF KANSAS SITES

A. Geographic Data

Site Code	Site Location	Region	Metropolitan Status	Population (1970 census)
0801	New York City, P.S. 77X	Middle Atlantic	Big city	7,894,798
0803	Philadelphia VI, Pa.	Middle Atlantic	Big city	1,948,609
0804	Portageville, Mo.	West North Central	Town*	3,117
0806	Kansas City, Mo.	West North Central	Big city	507,087
0807	Louisville, Ky.	East South Central	Big city	361,472

B. Demographic Data for Total Population

Site Name	Median Family Income	Percent of Families Below Poverty Level	Percent of Population Nonwhite	Percent of Adults Over 25 Who Finished High School
NYC P.S. 77X	$9,682	11.5%	23.4%	46.9%
Philadelphia VI	9,366	11.2	34.4	39.9
Portageville	5,913	30.4	18.1	37.3
Kansas City	9,910	8.9	22.8	55.9
Louisville	8,564	13.0	24.1	40.9
Average for all sites	$8,631	13.9%	20.7%	49.7%

C. Characteristics of the Follow Through Evaluation Sample at the Site for First Grade**

Site Name	Average Percent with Preschool	Average Percent with First Language Other than English	Average Baseline Score
NYC P.S. 77X	64%	36%	37%
Philadelphia VI	26	0	28
Portageville	53	0	32
Kansas City	42	1	27
Louisville	56	0	23

---

*Not within Standard Metropolitan Statistical Area (SMSA).

**Taken from the Follow Through Roster; represents the Follow Through evaluation sample.

Sources: U.S. Bureau of the Census, 1970; SRI

M. The tables in Appendix M present the implementation scores for each variable for each classroom. As described in the methodology section of this chapter, the final selection of variables was made on the basis of sponsor ratings reported on the Sponsor Variable Questionnaire. The variables selected for the University of Kansas model are of course limited descriptors of the program. Many processes and procedures important to the program are not assessed in this study of implementation. How the implementation scores were computed is also described in the methodology section on page 100. Since the aim of sponsors was to provide programs that differ in specific ways from traditional classrooms, the traditional classroom has been used as the standard yardstick to measure each sponsor's implementation. Seventeen critical variables were selected by University of Kansas as those on which they would expect their classrooms to differ from conventional classrooms. An implementation score of 3 would indicate the classroom was in the mid-range of conventional classrooms; an implementation score of 5 would mean that the model classrooms were in the uppermost range of conventional classrooms.

d. Implementation Findings

Figure 29 and Table 54 present the total implementation scores for each classroom by grade level. These total scores were computed by adding each quintile score for the 17 University of Kansas implementation variables and dividing by the total maximum score. Thus, an average score on all variables was computed. The scores are presented as percentages. Total scores for Non-Follow Through classrooms were also computed for the University of Kansas implementation variables. Means and standard deviations are presented in Table 54 along with the results of one-tailed t-tests, comparing Non-Follow Through with classrooms using the University of Kansas model.

The t-test presented on Table 54 indicates that the University of Kansas classrooms are different from the Non-Follow Through classrooms. Only one first grade Kansas City classroom's implementation score (64.7) is close to the Non-Follow Through score (62.4). All other University of Kansas classroom scores are in the 70s, 80s, or 90s. Histograms presented in Figure 29 illustrate how slight the overlap is between the scores of University of Kansas classrooms and Non-Follow Through classrooms. The analysis of variance indicates that in the first grade there is a greater difference among site implementation mean scores than there is within sites. Portageville has the highest mean score (92.) and Kansas City the lowest (76.). Kansas City also has the greatest within-site variance (8.7). The one classroom mentioned above seems to account for this variance. In the third grade the among-site and the within-site variance are very similar. The greatest variance is found between the two classrooms in New York. The least variation for third grades is found within Kansas City and Louisville. These sites also have high implementation scores.

All of the critical variable scores for each University of Kansas site and classroom are presented in Appendix M, Table M-6 in tabular form. The tables are prepared so that the number of classrooms receiving a particular implementation score is entered in a column. The classroom scores from each site lie along the rows. The total number of classrooms receiving a particular implementation score, as well as the percentage computed, is entered on the bottom rows. Only a selection of the variables which were designated by the sponsor as critical will be discussed in the text.

University of Kansas emphasizes the development of basic skills in reading and arithmetic. The findings on children involved in arithmetic (as presented in Table 55) indicate that first grades using the University of Kansas model score higher in implementation (72% in the fourth and fifth percentile) than do third grades (which have only 41% in the fourth and fifth percentile).

Table 55

NUMBERS, MATH, ARITHMETIC (Variable 66)--UNIVERSITY OF KANSAS

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
NYC P.S. 77X			1	1			2			
Philadelphia VI, Pa.			2	1	1		1	2		1
Portageville, Mo.				3	1				2	1
Kansas City, Mo.			2	1	1	2	2			
Louisville, Ky.				2	2		1		3	
Total classrooms			5	8	5	2	6	2	5	2
Percent of classrooms			28%	44%	28%	12%	35%	12%	29%	12%

However, in reading activities, both first grade and third grades have high implementation scores when compared with Non-Follow Through classrooms (see Table 56). Louisville, in fact, has all of first and third grade classrooms in the topmost quintile.

The University of Kansas program assigns children to small groups which rotate from the teacher to the instructional aides for lessons in reading, arithmetic, spelling, and handwriting. As shown in

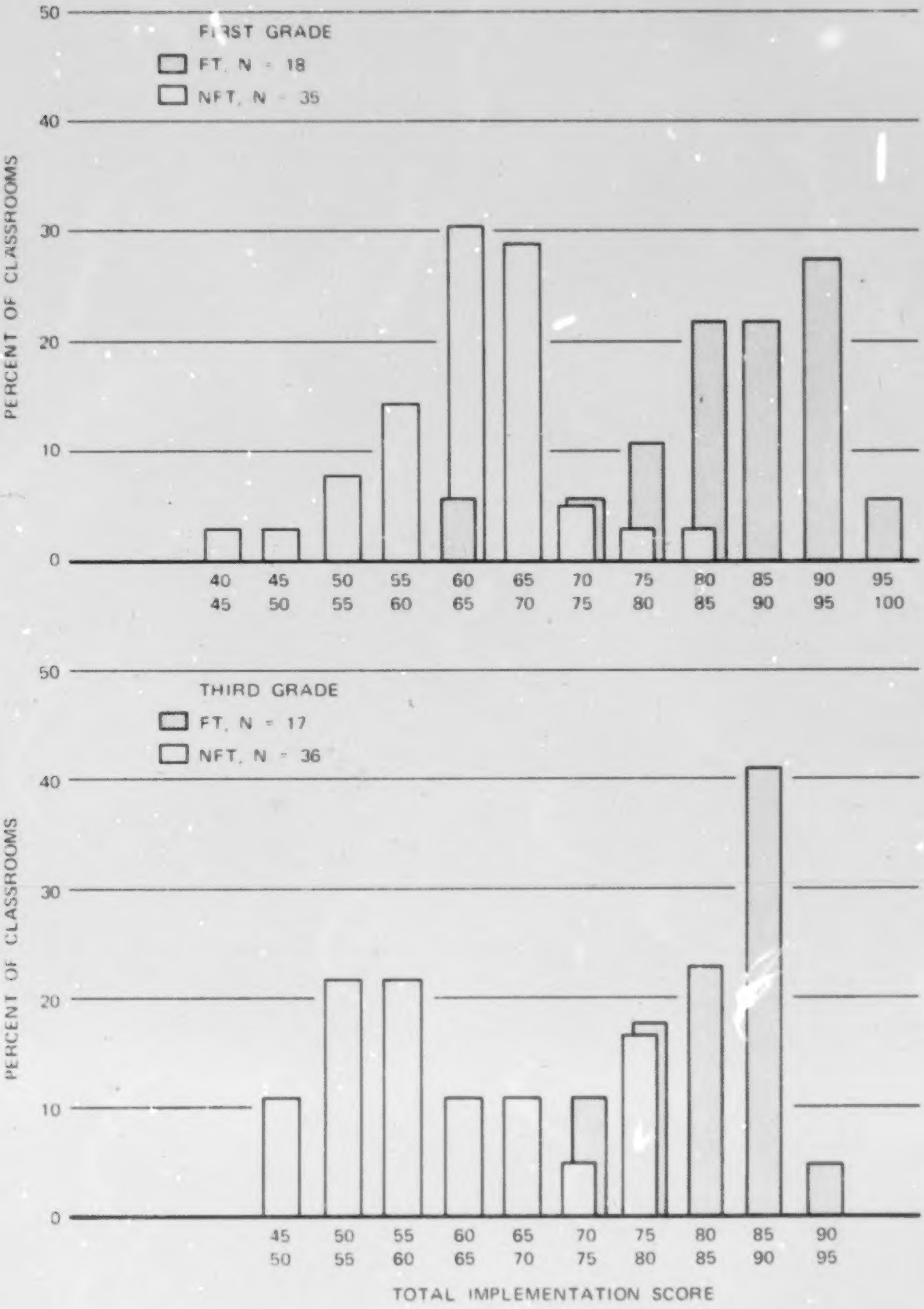

FIGURE 29 HISTOGRAM SHOWING IMPLEMENTATION SCORES FOR UNIVERSITY OF KANSAS

Table 54

TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS BY SITE--UNIVERSITY OF KANSAS

		First Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
NYC P.S. 77X	(EK)	75.0%	81.3%	%	%	78.1%	4.4
Philadelphia VI	(EK)	78.8	90.6	82.4	88.2	85.0	5.4
Portageville	(EK)	96.5	91.8	90.6	88.2	91.8	3.5
Kansas City	(EK)	82.4	74.1	83.5	64.7	76.2	8.7
Louisville	(EK)	85.9	90.6	92.9	85.9	88.8	3.5
Sponsor Scores (N=18):						84.6%	7.9
NFT Scores (N=35):						62.4	8.5

$t = 9.22$

$p < .001$

$f = 5.14$

$p < .01$

		Third Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
NYC P.S. 77X	(EK)	71.2%	85.0%	%	%	78.1%	9.7
Philadelphia VI	(EK)	76.5	82.4	75.3	84.7	79.7	4.5
Portageville	(EK)	89.4	74.1	78.8		80.8	7.8
Kansas City	(EK)	88.2	88.2	84.7	84.7	86.5	2.0
Louisville	(EK)	88.2	91.8	87.1	85.9	88.2	2.5
Sponsor Scores (N=17):						83.3%	6.0
NFT Scores (N=36):						61.3	9.3

$t = 8.89$

$p < .001$

$f = 2.53$

$p <$ NS

Table 56

READING, ALPHABET, LANGUAGE DEVELOPMENT (Variable 67)--UNIVERSITY OF KANSAS

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
NYC P.S. 77X		1			1				1	1
Philadelphia VI, Pa.	1			1	2			1	1	2
Portageville, Mo.					4			1	2	
Kansas City, Mo.		1	1	1	1		1		1	2
Louisville, Ky.					4					4
Total classrooms	1	2	1	2	12		1	2	5	9
Percent of classrooms	6%	11%	6%	11%	67%		6%	12%	29%	53%

Table 57, all of the first grade classrooms received an implementation score of 4 or 5 on the variable "Teacher with small group" and 88% of the third grade classrooms had a score of 4 or 5 on this variable.

Table 57

TEACHER WITH SMALL GROUP (Variable 88)--UNIVERSITY OF KANSAS

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
NYC P.S. 77X				1	1					2
Philadelphia VI, Pa.				3	1			1	1	2
Portageville, Mo.					4		1			2
Kansas City, Mo.				1	3					4
Louisville, Ky.					4					4
Total classrooms				5	13		1	1	1	14
Percent of classrooms				28%	72%		6%	6%	6%	82%

On Variable 94 (Aide with small group) all first and third grade classrooms scored 4 or 5 (see Table 58). In fact, all of New York City, Portageville, Kansas City, and Louisville's third grade classrooms have the highest possible implementation scores (5).

Table 58

AIDE WITH SMALL GROUP (Variable 94)--UNIVERSITY OF KANSAS

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1*	2	3	4	5	1*	2*	3	4	5
NYC P.S. 77X					2					2
Philadelphia VI, Pa.				3	1				1	3
Portageville, Mo.					4					3
Kansas City, Mo.					4					4
Louisville, Ky.					4					4
Total Classrooms				3	15				1	16
Percent of classrooms				17%	83%				6%	94%

---

*Of the Non-Follow Through classrooms, 20% of the first grade (the lowest quintile) had a mean of zero and 40% of the third grade classrooms (the two lowest quintiles) had a mean of zero. No University of Kansas site had a mean of zero.

Within the small group, the adults focus their attention upon one child at a time. As shown in Table 59, 89% of the first grades have an implementation score of 4 or 5 for Variable 438a. In the third grade, 88% of the classrooms have implementation scores of 5. Again, New York City, Portageville, Louisville, and Kansas City third grade classrooms all have an implementation score of 5. This is remarkable when one considers the diversity of the site characteristics (see Table 53).

In addition, the data presented in Table 60 support the finding that adults and children interact on a one-to-one basis. Note that 78% of the first grades and 65% of the third grades are in the fourth and fifth quintiles on Variable 344a, which describes the individual child's verbal interaction with adults. New York City has all of its classrooms in the fifth quintile.

Table 59

ADULT COMMUNICATION OR ATTENTION FOCUS, ONE CHILD (Variable 438a)--UNIVERSITY OF KANSAS

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
NYC P.S. 77X				1	1					2
Philadelphia VI, Pa.				2	2		1		1	2
Portageville, Mo.					4					3
Kansas City, Mo.		2		1	1					4
Louisville, Ky.					4					4
Total classrooms		2		4	12		1		1	15
Percent of classrooms		11%		22%	67%		6%		6%	88%

Table 60

INDIVIDUAL CHILD VERBAL INTERACTIONS WITH ADULT (Variable 344a)--UNIVERSITY OF KANSAS

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
NYC P.S. 77X					2					2
Philadelphia VI, Pa.			2	1	1		1	2	1	
Portageville, Mo.					4			1		2
Kansas City, Mo.			2	1	1			1		3
Louisville, Ky.					4			1	1	2
Total classrooms			4	2	12		1	5	2	9
Percent of classrooms			22%	11%	67%		6%	29%	12%	53%

The adult provides the group with a bit of information and then, on a one-to-one basis, the adult asks a child a question about the information. The child responds, and the adult provides the child with immediate feedback. The results for this interaction pattern are presented in Table 61. Seventeen of the 18 first grade classrooms attained an implementation score of 5. Twelve of the 17 third grade classrooms had implementation scores of 5. Again, Louisville and Kansas City have all of their classrooms attaining a high implementation score of 5.

Table 61

ADULT FEEDBACK TO CHILD RESPONSE TO ADULT ACADEMIC COMMANDS, REQUESTS, OR DIRECT QUESTIONS (Variable 412a)--UNIVERSITY OF KANSAS

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
NYC P.S. 77X					2				1	1
Philadelphia VI, Pa.				1	3				2	2
Portageville, Mo.					4		1	1		1
Kansas City, Mo.					4					4
Louisville, Ky.					4					4
Total classrooms				1	17		1	1	3	12
Percent of classrooms				6	94%		6%	6%	18%	71%

The reinforcement provided for correct responses and behavior during "work time" is in the form of tokens. These tokens can later be exchanged for some activity the child desires. Table 62 presents the findings for this variable. In the first grade, all 18 classrooms have implementation scores of 5. In the third grade, all classrooms have implementation scores of either 4 or 5. As mentioned in the methodology section, a classroom could be given a score of 4 even if the mean is zero. In this case, in the third grade the mean for New York City, Portageville, and Kansas City is zero, indicating that tokens are not used in the third grade at these sites. However, at Philadelphia and Louisville, tokens are used in third grade, and with the same frequency as in first grade (see Appendix O for means and standard deviation).

After the "earn time," University of Kansas classrooms have a "spend time," so that children can spend the tokens they have

Table 62

ALL ADULT REINFORCEMENT WITH TOKENS (Variable 469a)--UNIVERSITY OF KANSAS

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1*	2*	3*	4	5	1*	2*	3*	4	5
NYC P.S. 77X					2				2	
Philadelphia VI, Pa.					4					4
Portageville, Mo.					4				3	
Kansas City, Mo.					4				4	
Louisville, Ky.					4				1	3
Total classrooms					18				10	7
Percent of classrooms					100%				59%	41%

---

*Of the Non-Follow Through classrooms, 60% (the three lowest quintiles) had a mean of zero in both first and third grades. No University of Kansas site had a mean of zero.

earned during academic instruction. As presented in Table 63, 88% of the first grade classrooms have implementation scores in the upper ranges of the use of games and puzzles, while 59% of the third grades are in the upper range on this variable.

The variable "Child task persistence" (Table 64) indicates that self-instruction is continuous over a period of time (as indicated by a sequence of FMO frames). Of the 15 third grade classrooms, 14 have high implementation scores of 4 or 5. The implementation scores of the first grades on this variable are not as consistent over all as those in the third grade.

e. Summary of Implementation

The results of other implementation variables selected for University of Kansas may be found in Appendix M, Table M-6. Overall, University of Kansas classrooms are, except for one classroom, at the upper end of the scale when compared to the Non-Follow Through classrooms. As previously mentioned, both grades are significantly different in total implementation scores from Non-Follow Through. In addition, there is little deviation in total implementation scores within sites or among sites except in Kansas City first grades and New York third grades. Day-to-day variability reported on Table 5, p. 54, did not seem to adversely affect the implementation scores of the University of Kansas.

Table 63

GUESSING GAMES, TABLE GAMES, PUZZLES (Variable 65)--UNIVERSITY OF KANSAS

Sites	First Grade Classrooms with Implementation Scores					Third Grade Classrooms with Implementation Scores of				
	1*	2*	3	4	5	1*	2	3	4	5
NYC P.S. 77X			2				1		1	
Philadelphia VI, Pa.					4			1		3
Portageville, Mo.				2	2		2		1	
Kansas City, Mo.					4				3	1
Louisville, Ky.			2	1	1		3		1	
Total classrooms			4	3	11		6	1	6	4
Percent of classrooms			22%	17%	61%		35%	6%	35%	24%

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*Some 40% of the Non-Follow Through first grade classrooms (the two lowest quintiles) and 20% of the third grade classrooms had a mean of zero. No University of Kansas site had a mean of zero.

Table 64

CHILD TASK PERSISTENCE (Variable 513c)--UNIVERSITY OF KANSAS

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
NYC P.S. 77X										
Philadelphia VI, Pa.				1	3				3	1
Portageville, Mo.		3	1						1	2
Kansas City, Mo.		1	2	1				1	1	2
Louisville, Ky.			1		3				2	2
Total classrooms		4	4	2	6			1	7	7
Percent of classrooms		25%	25%	13%	38%			7%	47%	47%

A study of observer accuracy for the University of Kansas indicates that in general the codes which form the variables used in this section were acceptably reliable (see Appendix L, Table L-5). Some observers did have difficulty coding feedback variables from the videotape (New York and Portageville first grade observers and Kansas City and Louisville third grade observers). However, data from all University of Kansas sites are consistent with each other regarding the feedback variables used in this section (see Tables 61 and 62).

The reader is reminded that a sponsor's implementation is evaluated in two ways: (1) Do the classrooms differ from the traditional classroom? and (2) Are a given sponsor's classrooms similar to each other in level of implementation? Using these criteria, we conclude that University of Kansas would be able to implement their model in other sites similar to the ones used in this analysis.

6. Cognitively Oriented Curriculum Model--High/Scope

a. Description of the Model

Derived from the theories of Piaget and developed through eight years of research with disadvantaged children, the Cognitively Oriented Curriculum model provides teachers in the early elementary grades with a theoretical framework that embraces cognitive goals, a teaching strategy, and suggested materials.

Five cognitive areas are emphasized: classification, number, causality, time, and space. The curriculum contains a carefully sequenced set of goals that enable the teacher to focus on the development of specific thought processes perceived as essential to children's mental growth.

In the Cognitive Curriculum, the teaching of basic skills is incorporated into the daily routine and is an integral part of the "plan, work, and evaluate" instructional sequence. There are a variety of learning centers from which children can choose the activities that they wish to pursue. Each day, the children make a plan for their activities, follow their plan, represent or evaluate their activity in some way, and discuss what they have done in a group setting. The development of a child's reading, writing, and computation skills are expected to be a natural outgrowth of experiencing events, recording the events he experiences, and transmitting these experiences to others.

More specifically, during the planning period, the child verbalizes and then describes in writing what he is going to do during work time. Sometimes he makes a list of the things he is going to use. The teacher helps to clarify and extend his thoughts with appropriate questions. During the work period, the child carries out his plan. He may involve himself directly with reading, writing, or math activities by reading in the quiet area or writing a story in the book-making area;

or he may involve himself indirectly in such things as games, construction, and dramatic play. Writing and drawing during "representation" time requires the child to think about what he has done and to record these thoughts in some way; thus, reading and writing skills are developed. Language skills are emphasized during evaluation time when the child verbalizes the thoughts he has recorded as part of his representation.

The cognitive approach is based on the sponsor's conviction that a child must initiate his own learning. In order to promote such child initiative, specific instructional processes are required of High/Scope teachers: (1) instruction should be conducted with individual children and small groups; (2) children should engage actively with learning materials; (3) teachers should be good listeners; (4) discussions should be designed to encourage speculation and evaluation; (5) self-direction should be encouraged; and (6) verbal interaction among children should be encouraged.

b. Description of the Sites

High/Scope's five project sites are Greenwood, Mississippi; Fort Walton Beach, Florida; New York City; Greeley, Colorado; and Denver, Colorado. Demographic and other information describing the five communities in which the High/Scope projects are located is shown in Table 65.

Three of the sites (Greenwood, Fort Walton Beach, and Greeley) are classified as small cities whereas Denver and New York City are classified as large cities. Although New York, Denver, Greeley, and Fort Walton Beach differ in size, other demographic data for the four sites show similarities: their median family incomes of over $9,000 are higher than the Follow Through average, their percentages of below poverty level* families and nonwhite population (excepting New York) are lower than the average for Follow Through, and their percentages of adults over 25 who have completed high school are higher than the Follow Through sample average. New York City is also remarkably like them except that its 23.4% nonwhite population is higher than sample average.

Greenwood provides a clear contrast to the other four sites in all of these areas: its median family income of $6,458 and its 44.4% of adults over 25 who have completed high school are considerably lower than the other High/Scope projects, as well as being lower than the average over all Follow Through sites; its percentages of below poverty level families and nonwhite population are considerably higher than the other High/Scope sites, as well as being higher than the overall Follow Through average.

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*The U.S. Census Bureau uses U.S. Office of Economic Opportunity poverty index guidelines to establish poverty level.

Table 65

SITE AND DEMOGRAPHIC DATA FOR HIGH/SCOPE SITES

A. Geographic Data

Site Code	Site Location	Region	Metropolitan Status	Population (1970 census)
0901	Greenwood, Miss.	East South Central	Small city*	22,400
0902	Ft. Walton Beach, Fla.	South Atlantic	Small city*	19,994
0903	New York City, P.S. 92M	Middle Atlantic	Big city	7,894,798
0906	Greeley, Colo.	Mountain	Small city*	38,902
0907	Denver, Colo.	Mountain	Big city	514,678

B. Demographic Data for Total Population

Site Name	Median Family Income	Percent of Families Below Poverty Level	Percent of Population Nonwhite	Percent of Adults Over 25 Who Finished High School
Greenwood	$6,458	26.3%	50.4%	44.4%
Ft. Walton Beach	9,950	9.9	9.4	76.8
NYC P.S. 92M	9,682	11.5	23.4	46.9
Greeley	9,091	9.6	1.6	65.6
Denver	9,964	9.4	11.0	61.5
Average for all sites	$8,631	13.9%	20.7%	49.7%

C. Characteristics of the Follow Through Evaluation Sample at the Site for First Grade**

Site Name	Average Percent with Preschool	Average Percent with First Language Other than English	Average Baseline Score
Greenwood	39%	1%	--
Ft. Walton Beach	90	1	18***
NYC P.S. 92M	48	0	33
Greeley	56	25	31
Denver	65	9	25

---

*Not within Standard Metropolitan Statistical Area (SMSA).

**Taken from the Follow Through Roster; represents the Follow Through evaluation sample.

***A shorter form was presented in the entering year, thus there were fewer items and lower scores.

Sources: U.S. Bureau of the Census, 1970; SRI

c. Sponsor Implementation Variables

Tables of all the critical variables selected to assess implementation and exportability of the High/Scope model can be found in Appendix M. The tables in Appendix M present the implementation score for each variable for each classroom. As described in the methodology section of this chapter, the final selection of variables was made on the basis of sponsor ratings reported on the Sponsor Variable Questionnaire. The variables selected for High Scope are, of course, limited descriptors of the program. Many processes and procedures important to the program are not assessed in this study of implementation. For example, we cannot observe whether in fact the children are learning to classify objects or whether they are developing concepts regarding time and space. We can only record that they are using objects, that they are engaged in activities without adults present, and that they ask questions. One has to make a considerable leap from these variables to the sponsor's stated goals. How the implementation scores were computed is also described in the methodology section on page 100. Since the aim of sponsors was to differ in specific ways from traditional classrooms, the traditional classroom has been used as the yardstick to measure each sponsor's implementation.

Twenty-nine variables were selected by High/Scope as those on which they would expect their classrooms to differ from conventional classrooms. An implementation score of 3 indicates that the classroom is in the mid-range of conventional classrooms; an implementation score of 5 means that the model classrooms are in the uppermost range of conventional classrooms. A selection of variables designated as critical are discussed in the text.

d. Implementation Findings

Figure 30 and Table 66 present the total implementation scores for each classroom by grade level. These total scores were computed by adding each quintile score of High/Scope's 29 implementation variables and dividing by the total maximum score. Thus, an average score on all variables was computed. The scores are presented as percentages. Totals for Non-Follow Through classrooms were also computed for the High/Scope implementation variables. Means and standard deviations are presented in Table 66 along with the results of one-tailed t-tests, comparing Non-Follow Through with High/Scope. Table 66 presents the analysis of variance among sites.

The t-test presented on Table 66 indicates that overall the High/Scope implementation mean score differs from Non-Follow Through mean score. Only the classrooms in the New York third grades have implementation scores similar to those in Non-Follow Through. No explanation of the low implemented score of New York third grades is readily apparent. The demographic information presented on Table 65 indicates that the primary difference in New York and the other High/Scope sites

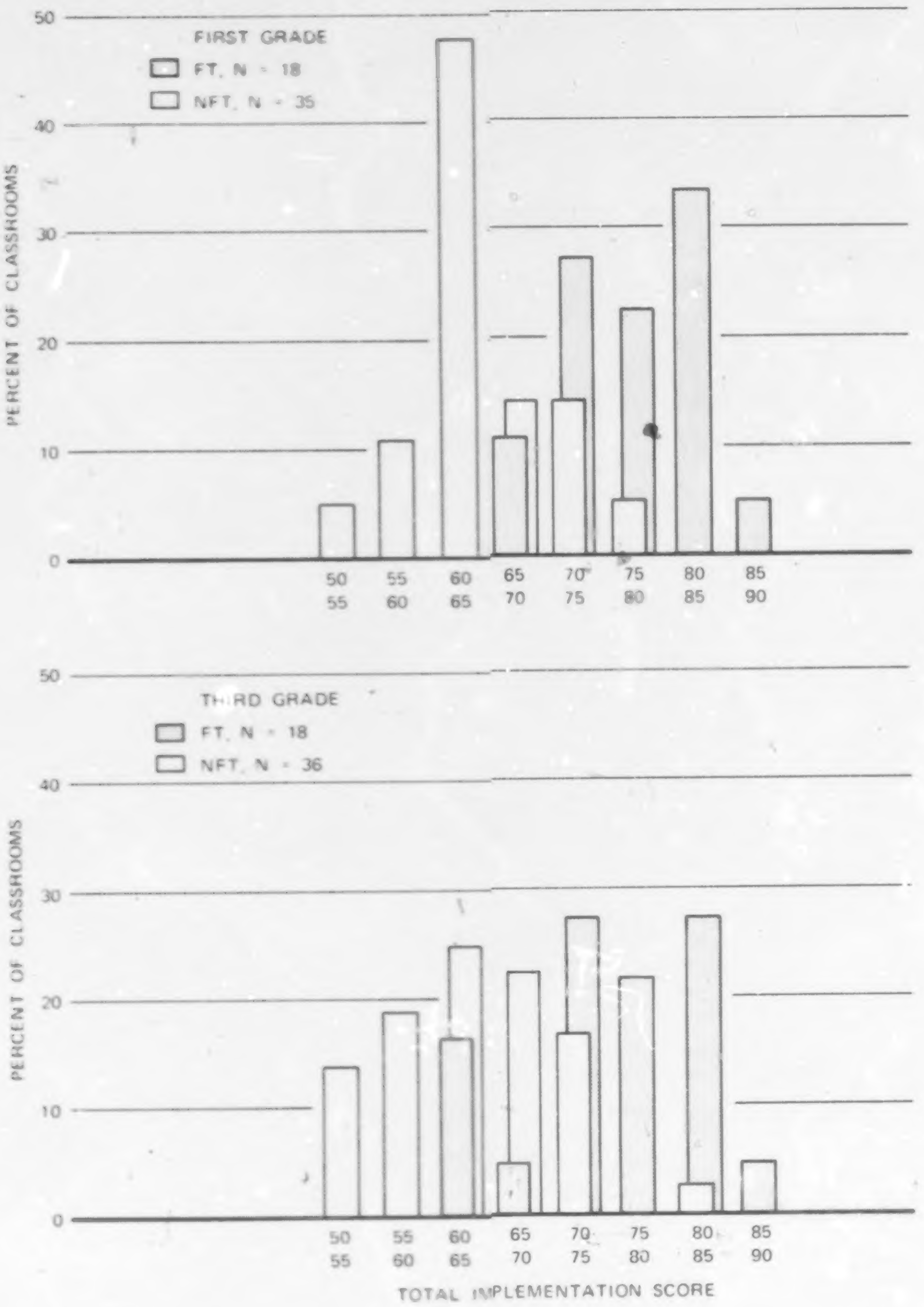

FIGURE 30 HISTOGRAM SHOWING IMPLEMENTATION SCORES FOR HIGH/SCOPE

Table 66

TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS BY SITF--HIGH/SCOPE

		First Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Greenwood	(E1)	71.0%	67.6%	70.3%	76.6%	71.4%	3.8
Ft. Walton Beach	(E1)	77.9	73.8	79.3	75.9	76.7	2.4
NYC P.S. 92M	(EK)	66.2	71.7	71.0		69.7	3.0
Greeley	(EK)	82.8	81.4	82.8		82.3	.8
Denver	(EK)	86.9	80.7	80.7	82.8	82.8	2.9
Sponsor Scores (N=18):						76.6%	6.0
NFT Scores (N=35):						63.7	5.8

t = 7.58

p > .001

f = 15.59

p > .001

		Third Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Greenwood	(E1)	70.3%	73.1%	75.2%	74.5%	73.3%	2.1
Ft. Walton Beach	(E1)	83.4	83.4	80.7	78.6	81.6	2.3
NYC P.S. 92M	(EK)	66.9	62.1	64.8	64.8	64.7	2.0
Greeley	(EK)	80.0	80.0	86.2		82.1	3.6
Denver	(EK)	73.1	71.7	78.6	76.6	75.0	3.2
Sponsor Scores (N=19):						75.0%	6.9
NFT Scores (N=36):						63.5	6.8

t = 5.93

p > .001

f = 27.34

p > .001

is geographic in nature and Table 4 indicates that the children are similar to those of other sites. Another source of error might be in the observers, however, a study of observer accuracy in New York indicates that the codes which form the variables for High/Scope were acceptably reliable (see Appendix L, Table L-6). The histograms presented in Figure 30 show that approximately 50 percent of the Non-Follow Through first grades score between 60 and 65 while no first grades in High/Scope have such a score. The analysis of variance shows that although it is small, the variability among sites is statistically significant relative to the within site variance for both first and third grades. In no case is the within site variance greater than 3.8 (Greenwood first grades) and in Greeley the variance between first grades is only .8. This is remarkable since in Greeley 27 percent of the children speak English as a second language and the attrition rate is high. These figures reflect a migrant Spanish speaking population, and indicate that the teachers have been able to implement the model where the differing language could have presented problems in communication of the model. In spite of the site demographic differences described for Greenwood the implementation at that site appears to be acceptable.

Scores for each implementation variable for each High/Scope site and classroom are presented in Appendix M, Table M-7. The tables are prepared so that the number of teachers receiving a particular implementation score is entered in a column. The teachers of each site are entered in the rows. The total number of teachers receiving a particular implementation score, as well as the percentage computed, is entered on the bottom rows. Only a few critical variables will be discussed in this text.

The High/Scope model considers it important that children be allowed to select their own seating and group for part of the time. As presented in Table 67, 56% of the first grades and 53% of the third grades received a score of 5 on this variable. Fort Walton Beach had all of their classrooms in both grade levels scoring at the highest level. New York, however, had all of their first and third grades scoring in the second quintile.

The High/Scope model encourages teachers to provide a wide variety of activities and material so that children can plan their own learning schedule. Findings presented in Table 68 indicate that 89% of the first grades and 79% of the third grades have high implementation scores of 4 and 5 on Var. 83 (Wide variety of activities, over one day).

High/Scope classrooms also are high on the implementation scale for Var. 65 (Guessing games, table games, puzzles) and Var. 70 (Sewing, cooking, pounding), as shown in Tables 69 and 70.

As presented in Table 71, High/Scope classrooms are low on the number of children engaged in arithmetic when compared to Non-Follow Through children. Arithmetic in High/Scope classrooms is often pursued informally and it is possible that observers may have missed

Table 67

CHILD SELECTION OF SEATING AND WORK GROUPS (Variable 24)--HIGH/SCOPE

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1*	2	3	4**	5	1*	2	3	4	5
Greenwood, Miss.		3	1							4
Ft. Walton Beach, Fla.					4					4
NYC P.S. 92M		3					4			
Greeley, Colo.					3				1	2
Denver, Colo.			1		3			2	2	
Total classrooms		6	2		10		4	2	3	10
Percent of classrooms		33%	11%		56%		21%	11%	16%	53%

---

[*] In Non-Follow Through, 20% of the classrooms (the lowest quintile) in both first and third grade had a mean of zero. One High/Scope site (NYC P/S. 92M) had a mean of zero in both first and third grade classrooms.

[**] Because of tied scores in the Non-Follow Through first grade classrooms, no High/Scope classroom could be given a score of 4.

Table 68

WIDE VARIETY OF ACTIVITIES, OVER ONE DAY (Variable 83)--HIGH/SCOPE

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Greenwood, Miss.		2		1	2		1	1	1	1
Ft. Walton Beach, Fla.			1		3					4
NYC P.S. 92M				1	2	1	1			2
Greeley, Colo.				2	1					3
Denver, Colo.				1	3					4
Total Classrooms		1	1	5	11	1	2	1	1	14
Percent of classrooms		6%	6%	28%	61%	5%	11%	5%	5%	74%

Table 69

GUESSING GAMES, TABLE GAMES, PUZZLES (Variable 65)--HIGH/SCOPE

Sites	First Grade Classrooms with Implem[illegible] Score[illegible]					Third Grade Classrooms with Implementation Scores of				
	1*	2*	[illegible]	[illegible]	5	1*	2	3	4	5
Greenwood, Miss.				1	3		2		1	1
Ft. Walton Beach, Fla.				2	2				2	2
NYC P.S. 92M				1	2		1		1	2
Greeley, Colo.					3				2	1
Denver, Colo.			2	1	1				2	2
Total classrooms			2	5	11		3		8	8
Percent of classrooms			11%	28%	61%		16%		42%	42%

---

*Some 40% of the first grade (the two lowest quintiles) and 20% of the third grade (lowest quintile) Non-Follow Through classrooms had a mean of zero. No High/Scope site had a mean of zero.

Table 70

SEWING, COOKING, POUNDING (Variable 70)--HIGH/SCOPE

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1*	2*	3*	4	5	1*	2*	3*	4	5
Greenwood, Miss.				4					4	
Ft. Walton Beach, Fla.				3	1				3	1
NYC P.S. 92M				1	2				2	2
Greeley, Colo.				2	1					3
Denver, Colo.					4				1	3
Total classrooms				10	8				10	9
Percent of classrooms				56%	44%				53%	47%

---

*Approximately 60% of the Non-Follow Through classrooms in both first and third grade (the three lowest quintiles) had a mean of zero. Only the first and third grade classrooms at Greenwood had a mean of zero on this variable (see Appendix O).

Table 71

NUMBERS, MATH, ARITHMETIC (Variable 66)--HIGH/SCOPE

Sites	First Grade Classrooms with Implementation Scores of					T[illegible]ade Classrooms [illegible]plementation [illegible]ores of				
	1	2	3	4	5	1	[illegible]	3	4	5
Greenwood, Miss.			1	1	2	1	3			
Ft. Walton Beach, Fla.	1	2		1		3				1
NYC P.S. 92M		2			1	2		1	1	
Greeley, Colo.	2				1	3				
Denver, Colo.		1	1	1	1	2				2
Total classrooms	3	5	2	3	5	11	3	1	1	3
Percent of classrooms	17%	28%	11%	17%	28%	58%	16%	5%	5%	16%

the fact that children were engaged in working out mathematical relationships and problems while cooking, sewing, or constructing. This may explain in part the low implementation scores on this variable.

Teachers and aides are most likely to interact with small groups of children as the children plan the day's activities or as they report their evaluation of the day's work. Except for one first grade classroom, the 37 High/Scope classrooms are in the fourth or fifth quintile on these variables related to teachers and aides working with small groups (see Tables 72 and 73).

Although High/Scope children often work in small groups, it is important that the adults interact with one child at a time. Table 74 presents data regarding the focus of the adult communication. Note that 77% of the first grades and 85% of the third grades are in the fourth or fifth quintile on this variable. Only three Greenwood first grades and one Fort Walton Beach first grade are in the lower quintiles on this variable.

Adults try to encourage children to think about problem solving and planning. One way to do this is to ask open-ended questions. Findings presented in Table 75 indicate that there is a wide range in implementation within site and among sites on this variable.

Similarly, children are encouraged to ask questions. As shown in Table 76, only Greeley has all of their classrooms attaining implementation scores of 5. Other sites have scattered classroom scores on this variable.

e. Summary of Implementation

Other implementation findings for High/Scope are presented in Appendix M, Table M-7. For the most part, High/Scope classrooms are well implemented. Excepting the New York third grades, they differ from the traditional classrooms and their total implementation scores place them on the upper end of the comparison measuring stick. There is little deviation in implementation scores of classrooms within a site. The greatest difference among site total implementation scores is found between New York (65) and Greeley (82) third grades. Even with a high percent of children who speak English as a second language, Greeley has been very successful in implementing the model.

Using the criteria stated for this evaluation we conclude that High/Scope would most likely be able to implement their model in other sites similar to the ones used in this analysis.

A study of observer accuracy for High/Scope indicates that the codes which form the variables used in this section were acceptably reliable (see Appendix L, Table L-6).

Table 72

TEACHER WITH SMALL GROUP (Variable 88)--HIGH/SCOPE

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Greenwood, Miss.					4					4
Ft. Walton Beach, Fla.			1	1	2				1	3
NYC P.S. 92M				1	2					4
Greeley, Colo.					3					3
Denver, Colo.					4				1	3
Total classrooms			1	2	15				2	17
Percent of classrooms			6%	11%	83%				11%	89%

Table 73

AIDE WITH SMALL GROUP (Variable 94)--HIGH/SCOPE

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1*	2	3	4	5	1*	2*	3	4	5
Greenwood, Miss.					4					4
Ft. Walton Beach, Fla.				4					2	2
NYC P.S. 92M				1	2					4
Greeley, Colo.				1	2				1	2
Denver, Colo.					4					4
Total classrooms				6	12				3	16
Percent of classrooms				33%	67%				16%	84%

---

*In Non-Follow Through, some 40% of the third grade classrooms (the two lowest quintiles) and 20% of the first grade classrooms (the lowest quintile) had a mean of zero. No High/Scope site had a mean of zero.

Table 74

ADULT COMMUNICATION OR ATTENTION FOCUS, ONE CHILD (Variable 438a)--HIGH/SCOPE

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Greenwood, Miss.	3				1				1	3
Ft. Walton Beach, Fla.		1		2	1			1		3
NYC P.S. 92M				2	1				4	
Greeley, Colo.					3					3
Denver, Colo.				2	2		1	1	1	1
Total classrooms	3	1		6	8		1	2	6	10
Percent of classrooms	17%	6%		33%	44%		5%	11%	32%	53%

Table 75

ADULT OPEN-ENDED QUESTIONS TO CHILDREN (Variable 452a)--HIGH/SCOPE

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Greenwood, Miss.	1	2			1	1	1		1	1
Ft. Walton Beach, Fla.		1	1	1	1			1		3
NYC P.S. 92M			1	1	1		2		1	1
Greeley, Colo.	2		1					2		1
Denver, Colo.			1		3		1		1	2
Total classrooms	3	3	4	2	6	1	4	3	3	8
Percent of classrooms	17%	17%	22%	11%	33%	5%	21%	16%	16%	42%

Table 76

CHILD QUESTIONS TO ADULT (Variable 350a)--HIGH/SCOPE

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Greenwood, Miss.	1	1	2			1	1		1	1
Ft. Walton Beach, Fla.		1		3					4	
NYC P.S. 92M					3		1	1	1	1
Greeley, Colo.					3					3
Denver, Colo.		1	1	2		1	1	1		1
Total classrooms	1	3	3	5	6	2	3	2	6	6
Percent of classrooms	6%	17%	17%	28%	33%	11%	16%	11%	32%	32%

7. EDC Open Education Program

a. Description of the Model

The EDC Follow Through approach is a program designed to help communities generate their own resources to implement open education. EDC believes that learning is facilitated by a child's active participation in the learning process, that learning is optimized in a setting that provides a range of materials and problems to investigate. The program is based on the belief that children learn in many different ways and therefore they should be provided a variety of opportunities and experiences. Traditional academic skills are important, but they are more usefully and permanently learned when children have many opportunities to develop them in flexible, self-directed ways that allow learning to become a part of their life style outside as well as in the classroom.

Interweaving of subject matter is essential to the open classroom. Children are expected to be purposefully mobile and independent, choosing activities out of their own interests. Thus, classrooms are often divided into several interest areas for activities in construction, science, social studies, reading, math, art, and music. Any or all of these interest areas may be used simultaneously by children during the day. An interdisciplinary or curriculum core approach is often used to teach reading, writing, and computation through a project, such as setting up and operating a store. Essentially, the intent of this approach is to encourage the development of: (1) problem-solving skills; (2) the ability to express oneself both creatively and functionally; (3) the ability to respect one's own thoughts and feelings; and (4) the ability to take responsibility for one's own learning.

b. Description of the Sites

The five EDC sites at which observations were conducted are Burlington, Vermont; Philadelphia, Pennsylvania; Paterson, New Jersey; Rosebud, Texas; and Smithfield, North Carolina. They range in population classification from rural to big city.

As can be seen in Table 77, Rosebud differs from the other sites in that the $4,522 median family income is the lowest in the sample and its percent of families below poverty level* is the highest. Smithfield, similar to Rosebud, has a low median family income and a high percent of families below poverty level. Rosebud and Paterson both show much lower percentages of adults over 25 who have completed high school than the average for Follow Through.

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*The U.S. Census Bureau uses U.S. Office of Economic Opportunity poverty index guidelines to establish poverty level.

Table 77

SITE AND DEMOGRAPHIC DATA FOR EDC SITES

A. Geographic Data

Site Code	Site Location	Region	Metropolitan Status	Population (1970 census)
1101	Burlington, Vermont	North East	Small city*	38,633
1103	Philadelphia IV, Pa.	Middle Atlantic	Big city	1,948,609
1106	Paterson, N.J.	Middle Atlantic	Medium city	144,824
1107	Rosebud, Texas	West South Central	Rural	1,597
1108	Smithfield, N.C.	South Atlantic	Town*	6,677

B. Demographic Data for Total Population

Site Name	Median Family Income	Percent of Families Below Poverty Level	Percent of Population Nonwhite	Percent of Adults Over 25 Who Finished High School
Burlington	$9,908	7.7%	0.7%	61.8%
Philadelphia IV	9,366	11.2	34.4	39.9
Paterson	8,716	12.4	28.3	31.3
Rosebud	4,522	34.3	20.9	27.1
Smithfield	6,368	26.9	37.6	43.4
Average for all sites	$8,631	13.9%	20.7%	49.7%

C. Characteristics of the Follow Through Evaluation Sample at the Site for First Grade**

Site Name	Average Percent with Preschool	Average Percent with First Language Other than English	Average Baseline Score
Burlington	58%	0%	25
Philadelphia IV	53	1	31
Paterson	86	8	23
Rosebud	55	2	--
Smithfield	56	0	--

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[*] Not within Standard Metropolitan Statistical Area (SMSA).

[**] Taken from the Follow Through Roster; represents the Follow Through evaluation sample.

Sources: U.S. Bureau of the Census, 1970; SRI

In contrast to the other EDC sites, in Burlington the percent is lower for families below poverty level as it is for the percent of nonwhites. Also the average percentage of adults over 25 who have completed high school is considerably higher than in the other EDC sites.

c. Sponsor Implementation Variables

Tables of the critical variables selected by the authors to assess implementation of the EDC model can be found in Appendix M. The tables in Appendix M describe the implementation score for each variable for each classroom. It must be noted that EDC does not expect classrooms to conform to model specifications or differ radically from traditional classrooms. EDC is an "approach" to education that recognizes, respects, and incorporates differences into its program. Ideas are offered about how to arrange classroom environments and how to prepare low-cost exploratory materials for children. But by their own example of not intruding or insisting upon conformity, they intend to encourage their teachers to respect the rights and opinions of children, to treat them as individuals, and to encourage cooperation rather than competition among members of the groups. The extent to which this occurs is not assessed in this evaluation. Workshops and guidance are offered by EDC and teacher attendance is voluntary rather than mandatory.

The sponsor did not select any variables as critical to the implementation of the model. They did not wish to place constraints upon the model. In lieu of a sponsor selection and in order to carry out the specified analysis the authors selected the variables presented in the report on the basis of discussion with sponsor representatives, experience in the classrooms, and reading available literature. A few of the variables selected as critical are presented in the text.

The variables selected for the EDC model are of course limited descriptors of the program. As previously stated, many processes and procedures important to the program are not assessed in this study of implementation. For example, adults are encouraged to provide a setting with a range of materials where children can investigate problems. Teachers are also encouraged to interweave subject matter. Our observation can only record the fact that a variety of materials are available and are used, that a wide variety of activities occur concurrently, and that children engage in activities independently. However, as great as the semantic gap is between the variable and the goal, EDC classrooms have been distinguished from Non-Follow Through and other educational models in past analysis.

How the implementation scores were computed is described in the methodology section on page 100. Since the aim of sponsors was to differ in specific ways from traditional classrooms, the traditional classroom has been used as the standard yardstick to measure each sponsor's implementation. Twenty variables were selected for first grade and 22 for second grade for EDC as those on which one could expect their classrooms to be different from conventional classrooms. An implementation score of 3 would indicate the classroom was in the mid-range relative to conventional classrooms; an implementation score of 5 would mean that the model classrooms were in the uppermost range of conventional classrooms.

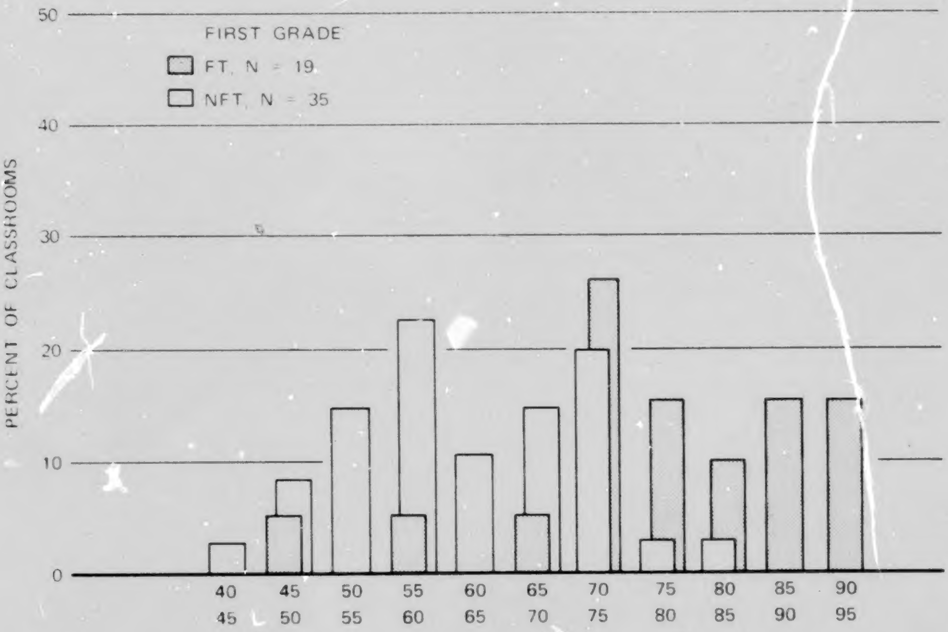
d. Implementation Findings

Figure 31 and Table 78 present the total implementation scores for each classroom by grade level. These total scores were computed by adding each quintile score of EDC's 35 implementation variables and dividing by the total maximum score. Thus, an average score on all variables was computed. The scores are presented as percentages. Total scores for Non-Follow Through classrooms were also computed for the EDC implementation variables. Means and standard deviations are presented in Table 78 along with the results of one-tailed t-tests, comparing Non-Follow Through with EDC. Table 78 presents the analysis of variance among sites.

The t-test presented on Table 78 indicates that the EDC classroom means are different statistically from the Non-Follow Through classrooms in both the first and third grades. Histograms in Figure 31 show that while the range for EDC and Non-Follow Through first grades is similar, the mean for EDC is 16 points higher. In the third grade the overlap of EDC classrooms scores with Non-Follow Through is not so great. Only one EDC third grade has a score lower than the Non-Follow Through mean score.

The analysis of variance shows that the variability among sites is statistically greater relative to the within site variance in both first and third grades. Philadelphia's low score seems to account for most of this variance for both first and third grades. Not only are their implementation scores lower than other sites, their within-site variation is greater. There are no obvious differences in the demographic nature or the child characteristics between Philadelphia and the other EDC sites (see Tables 3, 4, and 77). The difference in implementation scores might be explained by two prolonged teacher strikes in Philadelphia. It is possible that when tension is high teachers may become more structured and adhere less to the theory of the model. Part of this variance might also be attributable to the first grade observer: She had difficulty in recording Code 4 reliably (Instruction, explanation) on the videotapes (see Appendix L, Table L-7). It must be noted that all other sites have high implementation scores and low within site variance.

For this analysis, most classrooms are expected to be at the upper range of the scale when compared to traditional classrooms; however, since EDC is an approach and not a model, the analysis for this program will be descriptive of what occurs in their classrooms as compared with traditional classrooms.



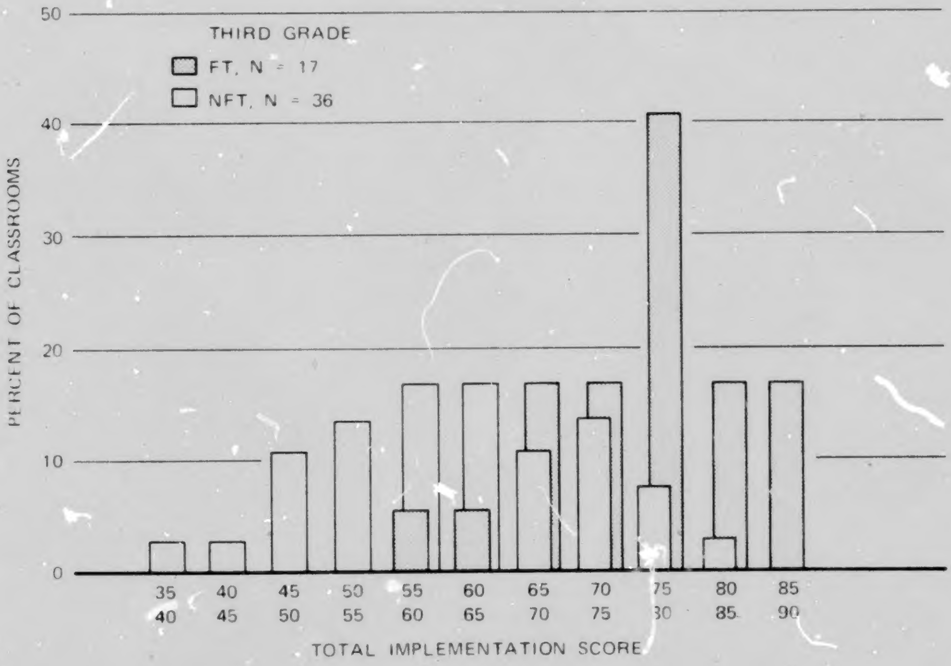


FIGURE 31 HISTOGRAM SHOWING IMPLEMENTATION SCORES FOR EDC

Table 78

TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS BY SITE--EDC

		First Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Burlington	(EK)	91.0%	91.0%	86.0%	93.0%	90.2%	3.0
Philadelphia IV	(EK)	72.0	80.0	58.0	48.0	64.5	14.3
Paterson	(EK)	70.0	79.0	79.0	73.0	75.2	4.5
Rosebud	(EK)	72.0	68.0	71.0		70.3	2.1
Smithfield	(E1)	85.0	76.0	86.0	83.0	82.5	4.5
Sponsor Scores (N=19):						76.9%	11.5
NFT Scores (N=35):						61.2	9.6

$t = 5.35$

$p > .001$

$f = 7.26$

$p > .01$

		Third Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Burlington	(EK)	85.5%	81.8%	79.1%	75.5%	80.5%	4.2
Philadelphia IV	(EK)	75.5	64.5	73.6	59.1	68.2	7.7
Paterson	(EK)	67.3	69.1	77.3	73.6	71.8	4.5
Rosebud	(EK)	85.5	80.0	79.1		81.5	3.4
Smithfield	(E1)	76.4	79.1			77.7	1.9
Sponsor Scores (N=17):						75.4%	7.1
NFT Scores (N=36):						60.7	10.6

$t = 5.18$

$p > .001$

$f = 4.54$

$p > .05$

Scores for each critical implementation variable for each EDC site and classroom are presented in Appendix M, Table M-8 in tabular form. The tables are prepared so that the number of teachers receiving a particular implementation score is entered in a column. The teachers from each site are entered in the rows. The total number of teachers receiving a particular implementation score, as well as the percentage computed, is entered on the bottom rows. Only a few critical variables will be discussed in this text. For example, as shown in Table 79, in 63% of the first grade EDC classrooms and in 71% of the third grade classrooms, the children receive individual instruction more often. Therefore, they are at the upper end of the scale when compared to Non-Follow Through classrooms.

Findings in Table 80 emphasize the fact that the focus of adult communication is toward one child at a time. Thus, 84% of the first grades and 71% of the third grades have implementation scores of 4 or 5 in this variable.

Communication between teachers and students in EDC classrooms is usually more informal than in traditional classrooms. As shown in Table 81, task-related conversations take place between teacher and students. All of the Philadelphia classrooms have the highest implementation score (5) on this variable.

EDC children are encouraged to inquire and ask questions (Table 82). While the frequency of asking questions is low, it is important to note that children in Burlington in both first and third grades had implementation scores of 4 or 5. Philadelphia and Smithfield first grades also received these implementation scores. Paterson and Rosebud had a mean of zero in both first and third grades; therefore their implementation score of 4 is misleading. (See Appendix O)

To encourage questioning, adults respond to questions with more questions. As indicated in Table 83, EDC adults are at the upper end of the scale for this variable.

The children engage in self instruction. As shown in Table 84, the third grade implementation scores are higher for this variable than are the first grade scores. This may reflect a developmental aspect of children in this program--they may be more capable or more desirous of working alone when they are older.

A limited assessment of children's pleasure is made by means of a variable based on records of smiles and laughter. These findings are presented in Table 85. Although the classrooms scatter across all of the scores, 53% of the EDC first grades and 48% of the EDC third grades are at the upper end of the scale for Var. 460a (All child positive affect).

Adults also express positive behavior toward children by smiles or laughter. Table 86 indicates that over 50% of the EDC classrooms have implementation scores of 4 or 5 on this variable.

Table 79

ADULT INSTRUCTS AN INDIVIDUAL CHILD (Variable 375a)--EDC

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Burlington, Vermont			1	1	2				2	2
Philadelphia IV, Pa.	2	2				2	1	1		
Paterson, N.J.				2	2				1	3
Rosebud, Texas					3					3
Smithfield, N.C.			2	2				1	1	
Total classrooms	2	2	3	5	7	2	1	2	4	8
Percent of classrooms	11%	11%	16%	26%	37%	12%	6%	12%	24%	47%

Table 80

ADULT COMMUNICATION OR ATTENTION FOCUS, ONE CHILD (Variable 438a)--EDC

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Burlington, Vermont					4				2	2
Philadelphia IV, Pa.	3			1		2	2			
Paterson, N.J.				2	2					4
Rosebud, Texas					3		1			2
Smithfield, N.C.				4					2	
Total classrooms	3			7	9	2	3		4	8
Percent of classrooms	16%			37%	47%	12%	18%		24%	47%

Table 81

ADULT TASK-RELATED COMMENTS TO CHILDREN (Variable 390a)--EDC

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Burlington, Vermont				1	3				2	2
Philadelphia IV, Pa.					4					4
Paterson, N.J.		1	2	1		3	1			
Rosebud, Texas			3					1	2	
Smithfield, N.C.				2	2					2
Total classrooms		1	5	4	9	3	1	1	4	8
Percent of classrooms		5%	26%	21%	47%	18%	6%	6%	24%	47%

Table 82

ALL CHILD OPEN-ENDED QUESTIONS (Variable 450a)--EDC

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3*	4	5	1	2	3*	4	5
Burlington, Vermont				2	2					4
Philadelphia IV, Pa.				1	3				4	
Paterson, N.J.				4					4	
Rosebud, Texas				3					3	
Smithfield, N.C.				2	2				2	
Total classrooms				12	7				13	4
Percent of classrooms				63%	37%				76%	24%

---

*60% of the Non-Follow Through classes had mean = zero.

Table 83

ADULT RESPONSE TO CHILD'S QUESTION WITH A QUESTION (Variable 453a)--EDC

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1*	2	3	4	5	1*	2	3	4	5
Burlington, Vermont				1	3				1	3
Philadelphia IV, Pa.		1	1	2			1	1	2	
Paterson, N.J.		3	1				1	2	1	
Rosebud, Texas			1		2				3	
Smithfield, N.C.			3	1			1		1	
Total classrooms		4	6	4	5		3	3	8	3
Percent of classrooms		21%	32%	21%	26%		18%	18%	47%	18%

---

[*] Some of the Non-Follow Through classes (the lowest quintile) had a mean of zero. No EDC site had a mean of zero.

Table 84

CHILD SELF-INSTRUCTION, OBJECTS (Variable 510c)--EDC

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1*	2	3	4	5	1*	2*	3	4	5
Burlington, Vermont		1		1	2			2	2	
Philadelphia IV, Pa.		4						2	1	1
Paterson, N.J.		1	1	2				1	2	1
Rosebud, Texas		1			2			1		2
Smithfield, N.C.		2			2					2
Total classrooms		9	1	3	6			6	5	6
Percent of classrooms		47%	5%	16%	32%			35%	29%	35%

---

[*] Some 20% of the Non-Follow Through first grade classes (lowest quintile) had a mean of zero, and 40% of the third grade (two lowest quintiles) had a mean of zero. Only the Philadelphia IV first grade had a mean of zero on Variable 510c.

Table 85

ALL CHILD POSITIVE AFFECT (Variable 460a)--EDC

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Burlington, Vermont			1	3						4
Philadelphia IV, Pa.		1	3					2	2	
Paterson, N.J.			1	2	1	1	1	1	1	
Rosebud, Texas	3						1	2		
Smithfield, N.C.				2	2			1	1	
Total classrooms	3	1	5	7	3	1	2	6	4	4
Percent of classrooms	16%	5%	26%	37%	16%	6%	12%	35%	24%	24%

Table 86

POSITIVE BEHAVIOR, ADULTS TO CHILDREN (Variable 423a)--EDC

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
Burlington, Vermont				1	3					4
Philadelphia IV, Pa.	1		1	2			1	1	1	1
Paterson, N.J.		2		1	1		1	2		
Rosebud, Texas	1		1		1		3			
Smithfield, N.C.		1		1	2					2
Total classrooms	2	3	2	5	7		5	3	1	8
Percent of classrooms	11%	16%	11%	26%	37%		29%	18%	6%	47%

e. Summary of Implementation

Other implementation findings for EDC are presented in Appendix M, Table M-8. What occurs in EDC classrooms has been described in part by these data, in comparison with Non-Follow Through classrooms. Much of what EDC believes in, such as an individualized approach to children, encouraging cooperation and inquiry on the part of children, and exhibiting positive regard on the part of all participants, seems to be reflected in the findings.

Excepting two Philadelphia first grades, the EDC classrooms differ from the Non-Follow Through classrooms mean score. Also with the exception of Philadelphia (which had two serious teacher strikes during the school year) there is very slight within-site or among-site variance. These signs of implementation as judged by the criteria of this evaluation are fairly remarkable given that EDC does not make a great effort to have teachers conform to a set of specifications. Apparently part of the theory that they are trying to communicate is being communicated.

A check of observer reliability indicates that observers in Philadelphia first grades and Rosebud first and third grades had difficulty with Code 4 (instruction, explanation), on the videotaped simulations (see Appendix L, Table L-7). Nevertheless, data from Rosebud observers are consistent with those of other sites (see Table 78). However, data from Philadelphia first grade classrooms do differ from other EDC first grades.

C. A Study of the Relationship Between Teacher Characteristics/Training and Implementation Scores

In the study of implementation it is important to try to understand what methods or strategies sponsors employed to bring about the changes in teacher behavior and what teacher characteristics are related to classroom implementation. The evaluation of teacher conformity to sponsor goal, which was described for each sponsor in the preceding section, leaves no doubt that implementation of the Follow Through models has taken place in different degrees in many diverse sites.

In an effort to understand elements in the sponsors' in-service teacher training program which were effective in the implementation process and teacher characteristics, items from the Teacher Questionnaire regarding training, teacher experience, education and satisfaction with the sponsor's model were selected for analysis. Unfortunately the items on the questionnaires were inadequate to yield the information necessary to understand the sponsors' teacher training strategies. Partial correlations were computed between implementation scores and items from the teacher questionnaire. No significant correlations were found (see Appendix T. Information regarding the in-service training procedures of sponsors can be obtained from the individual sponsors.

Classroom Description

The only analysis of items from the Teacher Questionnaire to be used in this study are those where teachers describe their classrooms. The rating scale and the items are presented in Figure 32. A structure/flexibility scale was developed to assess these descriptions. Those items describing the most structured environments were given a score of 1. Those items describing the most flexible environments were given a score of 5.

The lowest possible score (if all 1's were checked) would be 11, indicating structure and the highest possible score (if all 5's were checked) would be 55, indicating flexibility. The results of this analysis are presented on Table 87. The coefficient α for the scale was equal to .76.

Far West Lab's five sites are diverse geographically, and yet the reports from the 37 responding Far West Lab teachers of their classrooms are very similar (only 3.1 difference). In fact, their class-reports are so similar that we must conclude that this sponsor's training has shaped the behaviors of these teachers (see Table 87).

University of Arizona's 29 responding teachers differed by 6 points on the descriptions of their classrooms. The reader is reminded that in the description of implementation for University of Arizona, page 123, the classrooms had a relatively high variance in implementation scores. Theoretically, on a flexibility/structure scale they should fall between Far West and University of Kansas. However, given the diversity of sites, the teachers' reports are remarkably similar.

The uniformity of Bank Street's sites (Brattleboro, Fall River, New York City, and Tuskegee) is notable. The teachers' descriptions of their own classrooms in rural Alabama are only 2 points different from that of the teachers in New York City. The Bank Street sponsor's informal report to SRI of implementation in Philadelphia has been quite different from its reports of the other sites, and the 8.7 difference reflects such anomalies.

The educational theories of the sponsors previously described (Far West Lab, University of Arizona, and Bank Street) would place them higher on the scale of flexibility than the University of Oregon and University of Kansas models which, in terms of their theories, should be lower on this scale, or more structured. Table 87 indicates that not only are reports from the 32 responding University of Oregon teachers very similar to each other but that these teachers also feel that the program is the most structured of all. University of Kansas teachers report a level of structure below, and not overlapping with that of University of Oregon sites. Theoretically, University of Kansas is not as structured as University of Oregon since "spend time" is allowed (allowing child options), as well as a structured "work time."

32. Classrooms differ in many ways depending upon the philosophy and goals of the teaching staff, needs of children, etc. Each statement in Column A is matched with a contrasting statement in Column B. For each pair, place an X inside the parentheses which comes closest to describing your own classroom.

	Column A	Almost Always Like A	↔	Somewhat Like A and Somewhat Like B	↔	Almost Always Like B	Column B
a.	Children work independently	(1)	(2)	(3)	(4)	(5)	Children work under adult supervision
b.	Teacher imparts information and provides demonstrations	(1)	(2)	(3)	(4)	(5)	Children gather information on their own
c.	Adults initiate interactions with children	(1)	(2)	(3)	(4)	(5)	Children initiate interactions with adults
d.	Emphasis on emotional needs	(1)	(2)	(3)	(4)	(5)	Emphasis on subject matter
e.	Various activities take place at the same time	(1)	(2)	(3)	(4)	(5)	All the class is engaged in the same activity
f.	Lesson plan is followed closely	(1)	(2)	(3)	(4)	(5)	Lesson plan is flexible
g.	Work and play are distinguished	(1)	(2)	(3)	(4)	(5)	Work and play are not distinguished
h.	Children choose their own activities and materials	(1)	(2)	(3)	(4)	(5)	Teaching staff determines activities and materials
i.	Individual needs dominant	(1)	(2)	(3)	(4)	(5)	Group needs dominant
j.	Children interact freely with each other	(1)	(2)	(3)	(4)	(5)	Children do not interact freely with each other
k.	Children change places freely	(1)	(2)	(3)	(4)	(5)	Children have assigned seats

FIGURE 32 CLASSROOM DESCRIPTION

Table 87

FOLLOW THROUGH TEACHER RATINGS ON THE CLASSROOMS' STRUCTURE/FLEXIBILITY SCALE*

Sponsors and Sites	Number of Teachers Responding to This Item	$\bar{X}$	S.D.
Far West Laboratory for Educational Research and Development	37	41.4	4.9
0201 Berkeley, Calif.	7	40.0	2.3
0204 Duluth, Minn.	7	43.1	3.7
0207 Lebanon, N.H.	8	40.4	4.0
0209 Salt Lake City, Utah	7	42.9	6.0
0213 Tacoma, Wash.	8	40.6	7.1
University of Arizona	29	39.8	4.0
0305 Des Moines, Iowa	9	37.1	4.1
0309 Lakewood, N.J.	9	41.1	4.1
0311 Newark, N.J.	6	38.3	2.3
0316 Lincoln, Nebraska	7	43.1	2.2
Bank Street College	32	40.2	4.5
0502 Brattleboro, Vermont	5	41.6	4.8
0504 Fall River, Mass.	8	41.6	2.7
0506 New York City, P.S. 243K	8	41.3	2.0
0508 Philadelphia II, Pa.	7	34.6	5.0
0510 Tuskegee, Ala.	4	43.3	1.3
University of Oregon	32	31.2	4.4
0703 E. St. Louis, Ill.	7	30.1	4.8
0707 New York City, P.S. 137K	5	31.6	5.1
0708 Racine, Wisc.	8	31.0	4.6
0711 Tupelo, Miss.	6	31.2	3.4
0719 Providence, R.I.	6	32.3	5.2
University of Kansas	32	33.6	5.3
0801 New York City, P.S. 77X	4	35.5	5.2
0803 Philadelphia VI, Pa.	6	35.8	2.5
0804 Portageville, Mo.	7	32.4	4.0
0806 Kansas City, Mo.	8	32.5	7.7
0807 Louisville, Ky.	7	33.0	5.4
High/Scope Educational Research Foundation	32	42.9	5.7
0901 Greenwood, Miss.	10	39.3	5.1
0902 Ft. Walton Beach, Fla.	5	46.2	5.2
0903 New York City, P.S. 92M	4	47.0	2.9
0906 Greeley, Colo.	5	44.0	6.2
0907 Denver, Colo.	8	42.5	6.2
Education Development Center	37	42.9	4.8
1101 Burlington, Vermont	8	43.1	6.0
1103 Philadelphia IV, Pa.	7	38.6	5.3
1106 Paterson, N.J.	7	41.9	3.8
1107 Rosebud, Texas	9	44.8	2.6
1108 Smithfield, N.C.	6	45.8	3.3
Non-Follow Through	60	35.0	4.6

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*Coefficient α for this scale was equal to .76, which indicates that the reliability of the scale will be adequate for the purpose of this study.

The teachers of High/Scope and EDC vary somewhat in their descriptions of their classrooms. The High/Scope teachers in New York City report an average of 7.7 points more on the flexibility scale than do the teachers in the High/Scope classrooms in Greenwood, Miss. (see Table 87). EDC's teachers in Smithfield, N.C. are 7.2 points higher on the flexibility scale than are the Philadelphia teachers. Nevertheless, both models are on the upper end of the flexibility scale, which is to be expected in terms of their educational theory. In the case of EDC sites, it is especially interesting that 37 responding teachers report a fair amount of agreement as to what occurs in their classrooms. The EDC sponsor makes little or no overt effort to direct teacher behavior toward specific practices. The sponsor acts primarily as a model and presents alternatives to teachers, offering suggestions on how the room should be organized and which materials to prepare and use. However the sponsor's message is being delivered and received, since the EDC teachers describe their classrooms similarly, regardless of site.

Teachers' description of the extent of structure in their classrooms are quite distinct, suggesting that the teachers teach differently as a result of their training and experiences in the Follow Through program.

D. Summary

No simple statement, such as that all seven Follow Through sponsors have succeeded in implementing their model in the sites which were studied, can be made. Rather, conditional statements must be made. While all sponsor classroom mean scores for first and third grades are significantly different from the Non-Follow Through mean score, all sponsors except Far West Lab and University of Kansas and High/Scope have some classrooms which have scores below the Non-Follow Through mean. In both grades the University of Kansas implementation scores were higher than those of other sponsors.

The least amount of variance found among sites is in the Far West first grades (4.4). The most variance was found among the EDC first grade sites (11.5). Bank Street and High/Scope varied only moderately among sites in both grade levels.

Implementation of the models did not seem to be affected by the percent of children who did not use English as a first language; e.g., the scores in Salt Lake City, Fall River, Greeley, Denver, Fort Worth, and Lakewood were comparatively high.

Average low median family incomes did not seem to be related to successful implementation, e.g., Portageville, Rosebud, Greenwood, and Smithfield. All have low average incomes and high implementation scores.

The size of the city may have had some effect. Large cities accounted for seven of the eight implementation scores below 70 (see Table 88). The implementation scores for University of Oregon and High/Scope third grades

Table 88

IMPLEMENTATION SCORES COMPARED BY SIZE
OF THE FOLLOW THROUGH SITES

Implementation Score	Rural	Town	Small City	Medium City	Big City	Total
90		2			1	3
85			1		4	5
80	1	4	4	4	2	15
75		1	5	9	9	24
70	1	1	4	6	5	17
65				1	4	5
60					2	2
55					1	1
50						
Total	2	8	14	20	28	72*

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*Includes scores of both first and third grades.

in New York City were comparatively low and the between-classroom variance in New York was high for University of Oregon, High/Scope and University of Kansas. In Philadelphia, EDC has low implementation scores for both first and third grades as well as high within-site variance and Bank Street had low scores for three of the third grades. University of Kansas, however, had high implementation scores and little variation between classrooms in both grade levels in Philadelphia. Perhaps the teacher strikes in Philadelphia made it difficult to implement the more open models represented by Bank Street and EDC since under stress there may be the tendency to become more structured. In Newark all of the first grades scored below the Non-Follow Through mean. The third grades scored close to, but not below, the Non-Follow Through mean. The variation between the classroom scores is very slight. The Newark site has all of the problems of the stereotypical inner-city school; the poverty rate is high, few adults over 25 have a high school education, the community varies in its opinion of the goals for the schools, and the sponsor reported difficulty in providing adequate classroom service during the first several years of sponsorship.

In general, small sites such as Smithfield, Greeley, Portageville, Tupelo, Tuskegee and Lebanon were implemented more consistently at both grade levels and they had higher implementation scores in both grades. This seems to indicate that the educational change represented by the Follow Through sponsors may be instituted more successfully in the smaller cities and towns than in the large inner-city schools. There are exceptions, of course; University of Kansas was successful in both grade levels in Philadelphia. Table 88 indicates that no rural area, town or small city had implementation scores lower than 70 (see Table 88).

The conformity of the teachers' reports of their classroom practices are not likely to have happened by chance. The influence of the sponsors is apparent both in the implementation scores reflecting classroom practice and the teacher reports of their procedures.

Chapter VI

THE NATURE OF DIFFERENCES AMONG SPONSORS

The study of implementation and exportability in Chapter V included comparisons of each Follow Through program with Non-Follow Through. In Chapter VI, we examine the nature and degree of differences among Follow Through programs by comparing classroom processes among sponsors. That there are major differences among sponsors in terms of observational data has been documented in several prior evaluations of Follow Through classroom observation (Stallings, 1973; Stallings, Baker, and Steinmetz, 1972). Rather than replicating the extensive, detailed analyses performed in prior evaluations, we will address the following questions:

- What, if any, are the major dimensions that differentiate the classrooms of the several sponsors?
- What classroom observation variables contribute to these dimensions?
- How are sponsors differentiated on these dimensions?
- To what degree can classrooms be identified with their correct sponsor by using the classroom observation data?

A. Methodology

In past reports, differences among sponsors have been examined in two ways:

(1) F-tests with Newman-Keuls multiple comparisons on each variable.

(2) Factor analysis on a selected set of CO variables and comparisons of factor scores among sponsors.

With both techniques, differences among sponsors have been delineated. Neither technique is particularly well suited to answer the foregoing questions, however. The first technique suffers from the lack of data reduction; i.e., we come up with as many F-tests as there are variables. From the results of these tests we must piece together the major differences among sponsors. The first technique also suffers from the fact that the multiple F-tests are not independent. The F-tests for correlated variables yield results that are redundant to an unknown degree and nominal significance levels do not take this redundancy into account. Factor analysis provides a way of reducing a large number of variables to a few factors, which account for most of the variability among classrooms. However, this procedure does not have a criterion of discrimination among sponsors; i.e., the factors that account for variability among classrooms may not necessarily account for variability among sponsors.

The analysis we perform here consists of two parts. In the first part, we perform a multiple discriminant analysis. (See Cooley and Lohnes, 1962, and Rao, 1965, for details concerning this technique.) From a set of classroom observation variables, new variables, called discriminant functions are generated, each of which is a linear combination of the original COI variables.* These discriminant functions have the property that they maximize the variability among sponsors relative to within-sponsor variability. The discriminant functions can be viewed as major dimensions on which sponsors or groups of sponsors are distinguished.

The second part of the analysis consists of a classification procedure. (See Anderson, 1958, for details concerning this technique.) The "best" (most effective) linear functions for classifying classrooms by sponsor, under multivariate normal theory, are derived based on selected COI variables. Then, based on these classification functions, each classroom is matched with the sponsor it was most likely to have come from; i.e., we act as if we do not know which sponsor the classroom is affiliated with and we identify the sponsor the classroom is most likely to have come from. This operation determines how reliably a classroom can be identified with the correct sponsor or, conversely, how often it is confused with the program of another sponsor. Obviously, if the sponsor of a classroom can be identified correctly in this way, then differences among sponsors are quite apparent, and systematic observation by means of the COI can reveal them.

Portions of the discriminant analysis and the classification analysis are based on assumptions of multivariate normality and homogeneous within-sponsor covariance matrices. As was discussed in Chapter V, many of the classroom observation variables have clearly nonnormal distributions. It is also doubtful that the within-sponsor covariance matrices are homogeneous. Hence, the optimal properties of these techniques are only roughly approximated, at best. In such circumstances, these analyses should be looked upon as heuristic exercises for trying to achieve a better understanding of the differences among sponsors.

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*Because of analytic constraints associated with this technique, the number of discriminant functions that can be generated is the minimum of the number of COI variables and one less than the number of groups. For the analyses we performed, the number of canonical variables generated was six (the number of sponsors minus one).

Separate analyses were run on four sets of data:

(1) Selected PEI* and CCL* variables--first grade classrooms

(2) Selected PEI and CCL variables--third grade classrooms

(3) Selected FMO* variables--first grade classrooms

(4) Selected FMO variables--third grade classrooms.

The analysis of the PEI and CCL variables allowed determination of the environmental components that distinguish the sponsors. These environmental variables describe the grouping patterns of adults and children, the relative amount of time spent in certain activities, and the physical equipment used. The analysis of the selected FMO variables permitted determination of the classroom interaction variables distinguishing the sponsors. Appendix R contains the list of environmental and FMO variables and the means and standard deviations for each sponsor by grade level. A total of 45 environmental variables and 32 FMO variables entered the respective analyses. The selection of variables to be entered into the analyses took into consideration the following:

(1) Results from range tests of differences among sponsor means, performed for 1971-1972 analyses--To some extent evidence was already available on which variables differentiated sponsors. The discriminant analyses would add to this by providing information on the relative weights of these variables.

(2) The implementation variables employed extensively in earlier sections of this report--Those variables which the sponsors are attempting to influence in the classroom may be very closely linked to the characteristics that differentiate sponsors.

(3) The selection of four or five variables for each sponsor, for a total of between 30 and 35--Unless there were several variables advocated by each of the sponsors, some important differences were likely to be ignored.

The stepwise discriminant analysis program, BMD 07M, from the Biomedical Statistical Package of programs (BMD Biomedical Computer Program, 1973) was used. The classroom was the unit of analysis. In a preliminary phase, the program selects a subset of the variables for inclusion in each analysis. Variables are entered for inclusion one at a time until none of the variables that remain differentiate among sponsors. The criterion for differentiation among sponsors was that the F value for testing differences among sponsors conditioned on the variables that had already entered was significant at the .05 level.

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*See Chapter III for a detailed description of the variables classified as PEI (Physical Environment Information), CCL (Classroom Check List), and FMO (Five-Minute Observation).

Table 89 shows the number of classrooms that entered the analyses. Classrooms that had no child focus observations were omitted from all the analyses. Since only differences among sponsors were of interest, Non-Follow Through classrooms were not included in the discriminant analysis phase.

Table 89

NUMBER OF CLASSROOMS INCLUDED IN THE DISCRIMINANT ANALYSIS BY SPONSOR AND GRADE LEVEL

	First Grade	Third Grade
Far West Laboratory	20	19
University of Arizona	22	24
Bank Street College	18	18
University of Oregon	19	18
University of Kansas	16	15
High/Scope	18	19
EDC	19	17
Total	132	130

B. Results

First to be tested was the preliminary question about whether there were overall differences among sponsors. (Appendix R contains the means and standard deviations for each sponsor by grade level.)

The approximate F-statistic and degrees of freedom to test whether the mean vectors of the variables included in the analysis were different among sponsors are presented in Table 90 for each analysis. Also included is the number of variables that entered each analysis.

These statistics support, not very surprisingly, the hypothesis that there are significant differences among the sponsor means on the selected variables.

1. The Discriminant Functions

The next question to be examined was the relative power of the discriminant functions (or major dimensions) to discriminate among

Table 90

STATISTICS TO TEST WHETHER MEAN VECTORS ARE DIFFERENT AMONG SPONSORS

Statistic	Data Set			
	PEI and CCL Variables		FMO Variables	
	First Grade	Third Grade	First Grade	Third Grade
F-Statistic	6.52	4.68	11.29	8.30
df				
Numerator*	114	102	90	84
Denominator*	623	617	631	619
Critical level	<.001	<.001	<.001	<.001
Number of variables that entered the analysis	19	17	15	14

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*The degrees of freedom for the numerator and denominator are $r(g - 1)$ and $ms + 1 - r(g - 1)/2$ respectively, where r is the number of variables, g is the number of groups,

$$m = n - \frac{r + (g - 1) + 3}{2}, \quad s = \sqrt{\frac{r^2(g - 1)^2 - 4}{r^2 + (g - 1)^2 - 5}},$$

and n is the total number of cases.

sponsors. The eigenvalues for the six discriminant functions, the percentage of the total discriminating power* contained in each discriminant function, and the cumulative percentage of total discriminating power are presented for each of the four data sets in Table 91. It is the relative magnitude of the eigenvalues, as measured by the percentage of the total discriminating power, that indicates the relative strength of the associated discriminant functions to distinguish among sponsors.

The differences among sponsors on the first three discriminant functions account for over 80% of the total discriminating power that can be achieved with all six possible functions. Thus, the first three functions provide most of the discrimination that can be achieved and interpretations will not be attempted for functions beyond the first three. In fact, the major focus will be on the first two functions which account for at least 65% of the discriminating power in all data sets.

For both the environmental variables and the FMO variables, the eigenvalues corresponding to the first two discriminant functions for the first grade are larger than the corresponding values for the third grade. This is an indication that, as we shall see, differences among sponsors are more pronounced at the first grade than at the third grade. Since there are program differences between the two grade levels for several sponsors, the difference in discriminatory power is not surprising. The differences between first and third grades are examined further in the detailed analyses below.

Since a discriminant function is a linear function of the observed variables, it is necessary to consider the observed variables that receive large weights, in order to give any interpretive meaning to a function. This process is analogous to the interpretation of factors in a factor analysis in terms of the observed variables with large factor loadings. Typically, however, the discriminant functions will be more complex than factors that have been rotated to achieve simple structure. In other words, a discriminant function is apt to have more variables that receive substantial weights than would be the case in a factor analysis where good simple structure was achieved.

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*The percentage of the total discriminating power ascribed to a particular discriminant function is defined as

$$100\left(\frac{\lambda i}{\sum_j \lambda_j}\right)$$

where λi is the eigenvalue corresponding to the *i*th discriminant function.

Table 91

EIGENVALUES AND THE CUMULATIVE PERCENTAGE OF DISCRIMINATING POWER ASSOCIATED WITH EACH DISCRIMINANT FUNCTION FOR EACH DATA SET

	Discriminant Function					
	1	2	3	4	5	6
PEI and CCL						
First Grade						
Eigenvalue	3.93	1.68	1.14	.59	.53	.32
Percent of discriminating power	48%	20%	14%	8%	6%	4%
Cumulative percent of discriminating power	48%	68%	82%	90%	96%	100%
Third Grade						
Eigenvalue	7.13	4.32	.94	.51	.30	.15
Percent of discriminating power	41%	26%	14%	10%	6%	3%
Cumulative percent of discriminating power	41%	67%	81%	91%	97%	100%
Five-Minute Observation						
First Grade						
Eigenvalue	2.91	2.32	1.74	.96	.75	.51
Percent of discriminating power	53%	31%	7%	4%	4%	1%
Cumulative percent of discriminating power	53%	84%	91%	95%	99%	100%
Third Grade						
Eigenvalue	2.91	2.32	1.09	.58	.45	.08
Percent of discriminating power	39%	31%	15%	8%	6%	1%
Cumulative percent of discriminating power	39%	70%	85%	93%	99%	100%

The weights that define a discriminant function in terms of the observed variables are normalized, i.e., they are scaled such that the sum of the squared weights for all observed variables on a single discriminant function is equal to unity. The normalized discriminant function weights are useful for computing the discriminant function scores for the classrooms. They are not the best weights, however, for purposes of interpretation, because they are influenced by the standard deviations of the observed variables. Since the standard deviations of the observed variables are dependent on arbitrary scale characteristics of those variables, they have no fundamental interpretive meaning. Hence, the weights that are used for purposes of interpretation are scaled by multiplying the normalized weights by the within-group standard deviation of the corresponding observed variable. In this way the weights used for interpretation are adjusted for differences in the standard deviations of the observed variables.

The scaled coefficients for the first three discriminant functions are displayed in Tables 92-95 for the four data sets. The first three discriminant functions evaluated at the sponsor means are displayed at the bottom of the tables appropriately for each data set. Only the first three discriminant functions were examined, since in all cases they accounted for at least 80% of the discriminating power. The means and standard deviations for each sponsor on each variable that initially entered the analysis are displayed in Appendix R.

a. The PEI and CCL Variables--First Grade

Nineteen variables entered this discriminant analysis (see Table 92). The first discriminant function relates to the configuration of adults and children in the classroom. The variables with high positive scaled coefficients* included Var. 118 (All children independent), Var. 164 (Personalized instruction in reading), and Var. 241 (Puzzles, games/Academic activities). Those with high negative scaled coefficients were Var. 111 (Small group with any adult) and Var. 127 (Large group with aide/Math). The scale appears to run from a less-structured configuration where children tend to work independently and work with adults on a personalized basis (one or two children at a time) to a structured classroom configuration where children tend to work with adults in small or large groups. An examination of the values of the discriminant function evaluated at the sponsor means indicates that University of Kansas and University of Oregon are at one extreme (-3.81 and -1.67, respectively) and Far West and EDC are at the other extreme (2.55 and 1.92, respectively). University of Kansas and University of Oregon have extreme low means on Var. 241 (Puzzles, games/Academic activities) and personalized instruction in reading, and extremely high means on Var. 127 (Large group with

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*A coefficient was considered high if its absolute value was greater than .4. This criterion was established in a preliminary examination of the coefficients.

Table 92

STANDARDIZED COEFFICIENTS FOR THE DISCRIMINANT ANALYSIS: FIRST GRADE, PEI AND CCL VARIABLES

Var. No.	Variable Name	Within Sponsor S.D.	Discriminant Functions 1	2	3
25	Games, toys, play equipment present	1.58	-.03	- .24	-.71
66	Numbers, math, arithmetic	7.70	-.13	.55	.05
69	Science, natural world	3.65	.34	- .38	.12
83	Wide variety of activities, over one day	1.70	-.25	- .42	-.16
92	Aide with one child	11.55	-.07	.08	.52
94	Aide with small group	21.29	-.17	.94	-.11
111	Small group of children with any adult	16.10	-.53	-1.53	.42
118	All children independent	10.22	.56	.00	-.09
122	Small group with teacher/Math	16.80	.15	.05	-.24
127	Large group with aide/Math	13.07	-.52	- .48	.22
145	Small group with teacher/Reading	11.27	.24	.44	-.26
146	Large group with teacher/Reading	15.16	.33	- .29	.20
149	Small group with aide/Reading	15.75	.09	.36	-.08
164	Personalized instruction in reading	4.65	.46	.03	.27
230	Aide involved/Classroom Management	12.53	-.25	.44	-.33
233	Among adults and children/Social Interaction	4.39	.35	.05	.18
234	Among children/Social Interaction	4.10	.10	.04	.25
239	Math or science equipment/Academic Activities	22.62	-.05	- .75	.00
241	Puzzles, games/Academic Activities	15.71	.61	- .27	.22

DISCRIMINANT FUNCTIONS EVALUATED AT THE SPONSOR MEANS

Sponsor	Discriminant Functions 1	2	3
Far West	2.55	- .42	1.75
University of Arizona	.26	.32	-1.23
Bank Street College	.33	- .22	- .93
University of Oregon	-1.67	2.70	.73
University of Kansas	-3.81	-1.93	.82
High/Scope	- .36	- .44	- .78
EDC	1.92	- .37	- .23

aide/Math). Far West and EDC, on the other hand, have extremely low means on Var. 111 (Small group with any adult) and extremely high means on Var. 164 (Personalized instruction in reading).

The second discriminant function places the University of Oregon at the positive end of the continuum and the University of Kansas at the negative end. The University of Arizona has a small positive mean on the second function and the other four sponsors are tightly clustered with small negative values on this function. The variables with large positive scaled weights (greater than .4) in decreasing order of magnitude were Var. 94 (Aide with small group), Var. 66 (Numbers, math, arithmetic), Var. 145 (Small group with teacher/Reading), and Var. 230 (Aide involved/Classroom management). The variables with large negative weights were Var. 111 (Small group of children with any adult), Var. 239 (Math or science equipment/Academic activities), and Var. 83 (Wide variety of activities, over one day).

A problem in interpreting the meaning of this dimension may arise from an anomaly in the data. University of Kansas has an extremely high mean on Var. 239 (Math or science equipment/Academic activities). This appears to be due to an observer at one site who may mistakenly have coded the tokens used in the University of Kansas model as math equipment. Since Var. 239 does enter this analysis with a high negative weight, the distance between University of Oregon and University of Kansas on the second variable may be too large. (This one variable accounts for 1.3 units of the 4.6 units that separate the two sponsor means.)

Variable 239 (Math or science equipment/Academic activities) would still serve to separate the University of Oregon from all other sponsors even if the University of Kansas mean were not spuriously high. If it is assumed that the University of Kansas mean is too high on this variable; however, the second discriminant function would serve mainly to separate the University of Oregon from all other sponsors. From an inspection of the means of the variables with large weights on the second function, it appears that much of the uniqueness of the University of Oregon on this function is due to a relatively high mean on Var. 66 (Numbers, math, arithmetic) and a very low mean on Var. 239 (Math or science equipment/Academic activities).

Figure 33 is a plot of the first discriminant function along the horizontal axis against the second discriminant function along the vertical axis for first grade PEI and CCL variables. Each letter indicates the sponsorship of the corresponding classroom. Each asterisk represents sponsor means. The dollar sign represents overlap of classrooms. As can be seen in Figure 33, the first two functions together divide the seven sponsors into four relatively distinct clusters. University of Kansas and University of Oregon classrooms stand out in distinct clusters. Far West and EDC cluster together apart from the other sponsors and the remaining three sponsors form the fourth cluster.

The first two discriminant functions together account for 68% of the discriminating power of all six possible functions (see Table

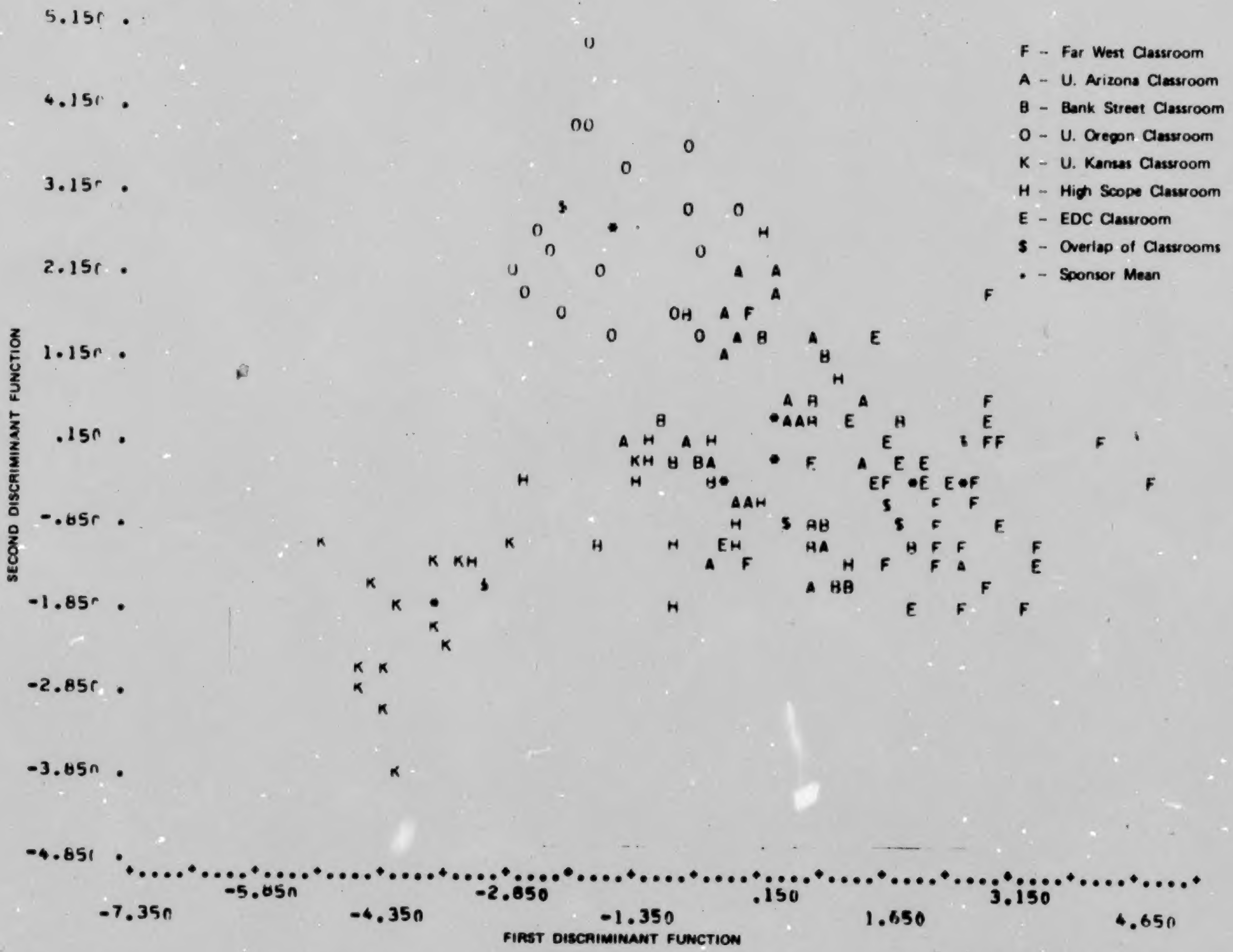

FIGURE 33 PLOT OF FIRST DISCRIMINANT FUNCTION AGAINST THE SECOND DISCRIMINANT FUNCTION -- PEI AND CCL VARIABLES FIRST GRADE

91). While relatively less powerful, the third function accounts for an additional 14%. The third function has large positive scaled weights on Var. 92 (Aide with one child) and Var. 111 (Small group of children with any adult). Only Var. 25 (Games, toys, play equipment present) has a negative weight greater than .4 in absolute value on the third function. When the third discriminant function is evaluated at the sponsor means, the Far West Laboratory is found to lie at the positive end of the continuum and the University of Arizona at the negative end.

b. The PEI and CCL Variables--Third Grade

Seventeen variables entered this analysis for third grade PEI and CCL variables (see Table 93). The first discriminant function relates to the configuration of the classroom and the amount of arts and crafts. Variable 82 (Wide variety of activities, concurrent) was the only variable with a positive scaled weight greater than .4. Variable 126 (Small group with aide/Math) and Var. 127 (Large group with aide/Math) had positive weights of .39 and .36, respectively (see Table 98). The high negative weights were obtained on Var. 83 (Wide variety of activities, over one day), Var. 86 (Teacher with one child), Var. 118 (All children independent), and Var. 64 (Arts, crafts). The high weights of opposite sign for Var. 82 (Wide variety of activities, concurrent) and Var. 83 (Wide variety of activities, over one day) has the cumulative effect of giving high negative weights to classrooms that have many activities over the day, but a moderate number of activities occurring concurrently.* Far West, Bank Street, and EDC classrooms appear to have this activity pattern, with more arts and crafts and more independent children (see Appendix R).

The way sponsors were aligned along the first dimension was very similar to what was found for the first grade with a reversal in direction. University of Kansas and University of Oregon are at one extreme (with more small and large groups with aide in math) with means of 2.75 and 1.78 respectively, and Far West and EDC are at the other extreme (with more arts and crafts and a wide variety of activities over the day) with means of -1.19 and -1.27 respectively. As in the first grade, the first function seems to correspond to a dimension of the degree of classroom structure and activities.

The second function also relates to the configuration of the classrooms. Variable 83 (Wide variety of activities, over one day) and Var. 111 (Small group of children with any adult) have high positive scaled coefficients; Var. 66 (Numbers, math, arithmetic) and Var. 118 (All children independent) have high negative scaled coefficients. High/

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*Those classrooms where the number of concurrent activities occurring was low also tended to have a low number of activities occurring over the day (see Table R-2 in Appendix R).

Table 93

STANDARDIZED COEFFICIENTS FOR THE DISCRIMINANT ANALYSIS: THIRD GRADE, PEI AND CCL VARIABLES

Var. No.	Variable Name	Within Sponsor S.D.	Discriminant Functions 1	2	3
25	Games, toys, play equipment present	1.95	-.28	-.05	.31
63	Story, music, dancing	4.39	-.11	-.29	.57
64	Arts, crafts	4.53	-.40	.07	.38
66	Numbers, math, arithmetic	7.38	-.03	-.51	.16
82	Wide variety of activities, concurrent	.47	.59	.20	- .54
83	Wide variety of activities, over one day	1.51	-.70	.44	.04
86	Teacher with one child	10.19	-.45	.18	.92
109	One child with any adult	1.06	.21	-.18	-1.33
111	Small group of children with any adult	16.55	-.17	.48	.17
114	One child independent	3.39	.20	.36	.75
118	All children independent	13.70	-.44	-.73	.19
122	Small group with teacher/Math	15.52	-.13	.36	- .11
126	Small group with aide/Math	22.72	.39	.09	.30
127	Large group with aide/Math	13.27	.36	.11	.35
165	All children independent/Reading	17.09	-.19	.19	- .72
229	Teacher involved/Classroom Management	7.80	.28	-.19	.04
233	Among adults and children/Social Interaction	3.96	-.10	-.31	.40

DISCRIMINANT FUNCTIONS EVALUATED AT THE SPONSOR MEANS

Sponsor	Discriminant Functions 1	2	3
Far West	-1.19	- .44	- .77
University of Arizona	- .55	1.15	- .50
Bank Street College	- .97	- .03	1.09
University of Oregon	1.78	-1.80	- .81
University of Kansas	2.75	.81	1.01
High/Scope	.08	1.22	- .48
EDC	-1.27	-1.26	.92

Scope, University of Arizona, and University of Kansas are on the positive end of the scale with University of Oregon and EDC on the negative end of this dimension.

Figure 34 displays the graph of the first discriminant function against the second discriminant function for third grade PEI and CCL variables. University of Oregon and University of Kansas classrooms form two separate clusters, although not as distinct as in Figure 33 for the first grade. EDC and Far West classrooms tend to cluster together in the lower left corner, University of Arizona and High/Scope classrooms cluster together in the upper left corner, and Bank Street classrooms are dispersed among these two clusters.

The third discriminant function has large positive weights on Var. 86 (Teacher with one child), Var. 114 (One child independent) and Var. 63 (Story, music, dancing), while large negative weights are obtained for Var. 109 (One child with any adult), Var. 165 (All children independent/Reading), and Var. 82 (Wide variety of activities, concurrent). The interpretation of this dimension is unclear and it does not seem to have a counterpart in any of the three dimensions at first grade level. This dimension would cluster Bank Street, the University of Kansas, and EDC at the positive end of the continuum and the other four sponsors at the negative end.

c. The FMO Variables--First Grade

Fifteen variables entered this analysis (see Table 94). On the first discriminant function, Var. 399a (Adult reinforcement with token, academic) has a very high positive scaled coefficient and Var. 363a (Child group response to adult academic command, request, or direct question) has a very high negative scaled coefficient. An examination of the first discriminant function evaluated at the sponsor means shows that University of Kansas is at the positive extreme with a value of 6.31 and University of Oregon is at the negative extreme with -3.50 (see Table 94). The mean for University of Kansas classrooms on Var. 399a (Adult reinforcement with token, academic) is 3.77 with the next highest value being .25 (see Appendix R). The mean for University of Oregon classrooms on Var. 363a (Child group responses to adult academic command, request, or direct question) is 6.56 with the next highest value being 1.68 (see Appendix R). Thus, the first discriminant function is differentiating University of Kansas classrooms from University of Oregon classrooms and differentiating these two sponsors from the others. This discrimination is accomplished primarily by two items (adult reinforcement with token, academic and child group response to adult academic command, request, or direct question).

The second discriminant function separates University of Kansas and University of Oregon classrooms from those of the other sponsors. University of Kansas and High/Scope have low means relative to other sponsors on the one variable with a high positive scaled coefficient Var. 441a (Adult communication or attention focus, large group).

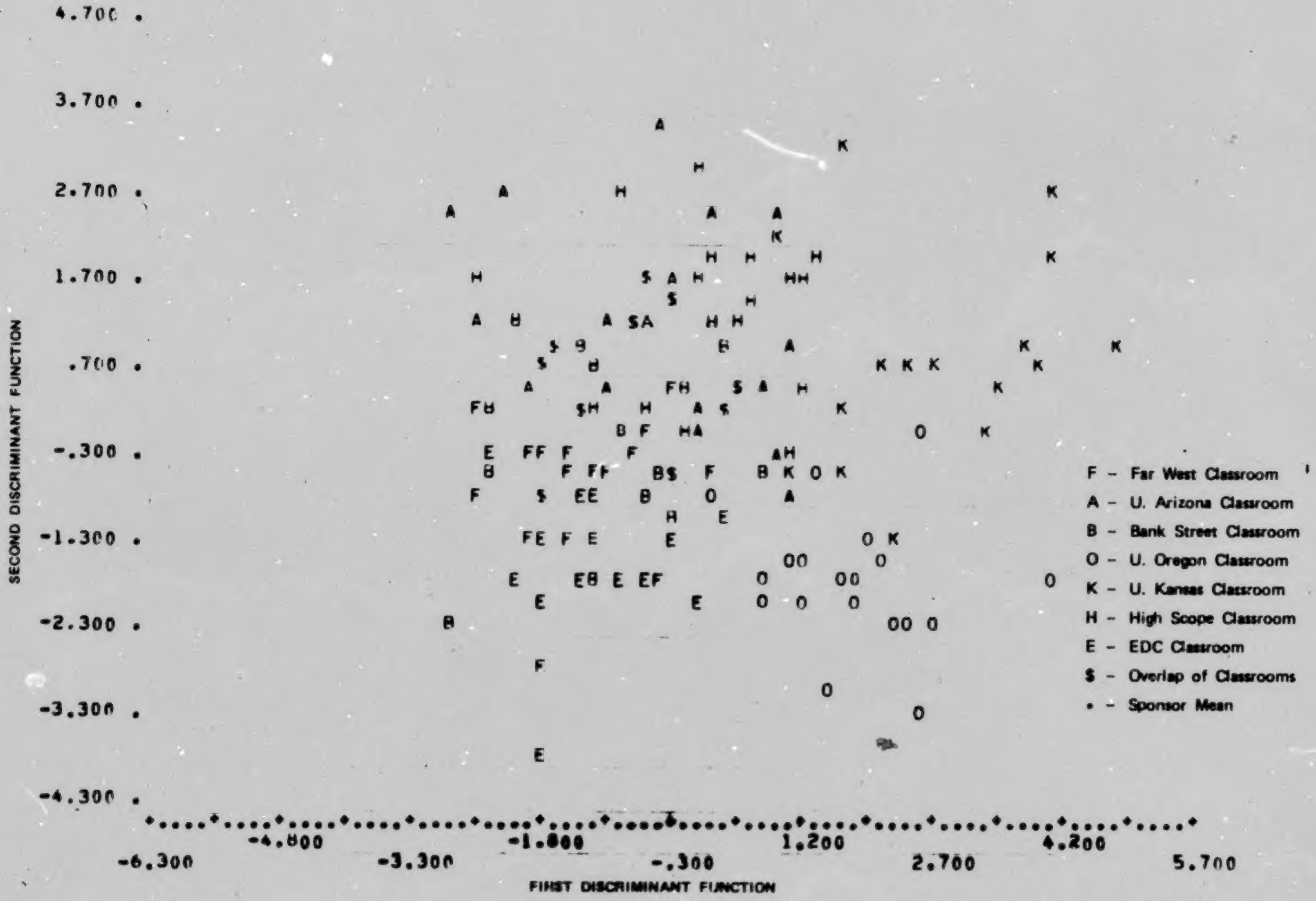

FIGURE 34 PLOT OF FIRST DISCRIMINANT FUNCTION AGAINST THE SECOND DISCRIMINANT FUNCTION—PEI AND CCL VARIABLES THIRD GRADE

Table 94

STANDARDIZED COEFFICIENTS FOR THE DISCRIMINANT ANALYSIS: FIRST GRADE, FMO VARIABLES

Var. No.	Variable Name	Within Sponsor S.D.	Discriminant Functions 1	2	3
350a	Child questions to adults	.86	.40	.35	.04
360a	Child responses, academic	2.98	.28	.17	- .49
363a	Child group responses to adult academic command, request, or direct question	1.25	-.84	-1.02	.68
365a	Adult responses to child request or questions, nonacademic	.49	-.46	- .50	- .18
374a	Adult instruction, academic	3.16	-.16	.12	.29
398a	All adult praise to children	1.15	-.07	- .44	- .04
399a	Adult reinforcement with token, academic	.63	.95	- .19	.10
440a	Adult communication or attention focus, small group	4.96	- .09	.17	-1.14
441a	Adult communication or attention focus, large group	6.16	.36	.51	- .72
454a	Child's extended response to questions	.47	.33	.14	- .92
462a	All positive behavior	1.21	-.15	.28	.23
509c	Child self-instruction, academic	7.45	.29	-.19	.28
510c	Child self-instruction, objects	4.29	.03	.17	.05
574c	Child movement	1.63	-.20	.21	- .09
587c	All child task-related comments	2.56	.09	.33	.17

DISCRIMINANT FUNCTIONS EVALUATED AT THE SPONSOR MEANS

Sponsor	Discriminant Functions 1	2	3
Far West	- .27	1.33	.52
University of Arizona	.02	1.45	-1.98
Bank Street College	- .49	1.25	.53
University of Oregon	-3.50	-3.99	- .20
University of Kansas	6.31	-2.35	.08
High/Scope	- .93	.30	.60
EDC	- .21	1.42	.82

Two of the variables with high negative-scaled coefficients are those where either University of Oregon or University of Kansas have high means relative to other sponsors: Var. 363a (Child group response to adult academic command, request, or direct question), or Var. 398a (All adult praise to children).

The plot of the first discriminant function against the second discriminant function in Figure 35 clearly illustrates the discrimination that is being made for first grade FMO variables. University of Oregon classrooms are clustered in the lower left, University of Kansas classrooms are clustered in the lower right, and the classrooms of the other sponsors are massed in the middle. There was no tendency for the first two FMO discriminant functions to identify a Far West-EDC cluster as there was for the PEI and CCL variables. University of Kansas classrooms are distinguished primarily by the use of tokens for reinforcement. University of Oregon classrooms are distinguished by child group responses to adult commands, requests, and direct questions. Otherwise the results are similar for the two sets of variables in that the University of Kansas and the University of Oregon are most clearly separated as distinct clusters.

The third FMO discriminant function had a large positive weight on Var. 363a (Child group response to adult academic command, request, or direct question). Large negative weights (see Table 94) are obtained for Var. 440a (Adult communication or attention focus, small group), Var. 441a (Adult communication or attention focus, large group), Var. 454a (Child's extended response to questions), and Var. 360a (Child response, academic). Four sponsors (Far West, Bank Street, High/Scope, and EDC) are clustered at the positive end of this dimension while the University of Arizona stands alone at the negative end. University of Arizona classrooms appear to be distinguished from other classrooms by their relatively high means on Var. 454a (Child's extended response to questions), and relatively high means on both Var. 440a (Adult communication or attention focus, small group) and Var. 441a (Adult communication or attention focus, large group). Thus, the third FMO discriminant function is similar in effect to the third PEI-CCL function at the first grade in that it tends to distinguish the University of Arizona from the other sponsors.

d. The FMO Variables—Third Grade

Fourteen variables entered the analysis (see Table 95). The first discriminant function appears to differentiate sponsors on a dimension related to the degree of child interaction with adults and the children's role in the interactions. The variables with high positive scaled coefficients were Var. 363a (Child group responses to adult academic command, request, or direct question), Var. 405a (All adult corrective feedback to children), Var. 509c (Child self-instruction, academic), and Var. 546c (Child waiting). The one variable with a high negative scaled coefficient is Var. 350a (Child questions to adults).

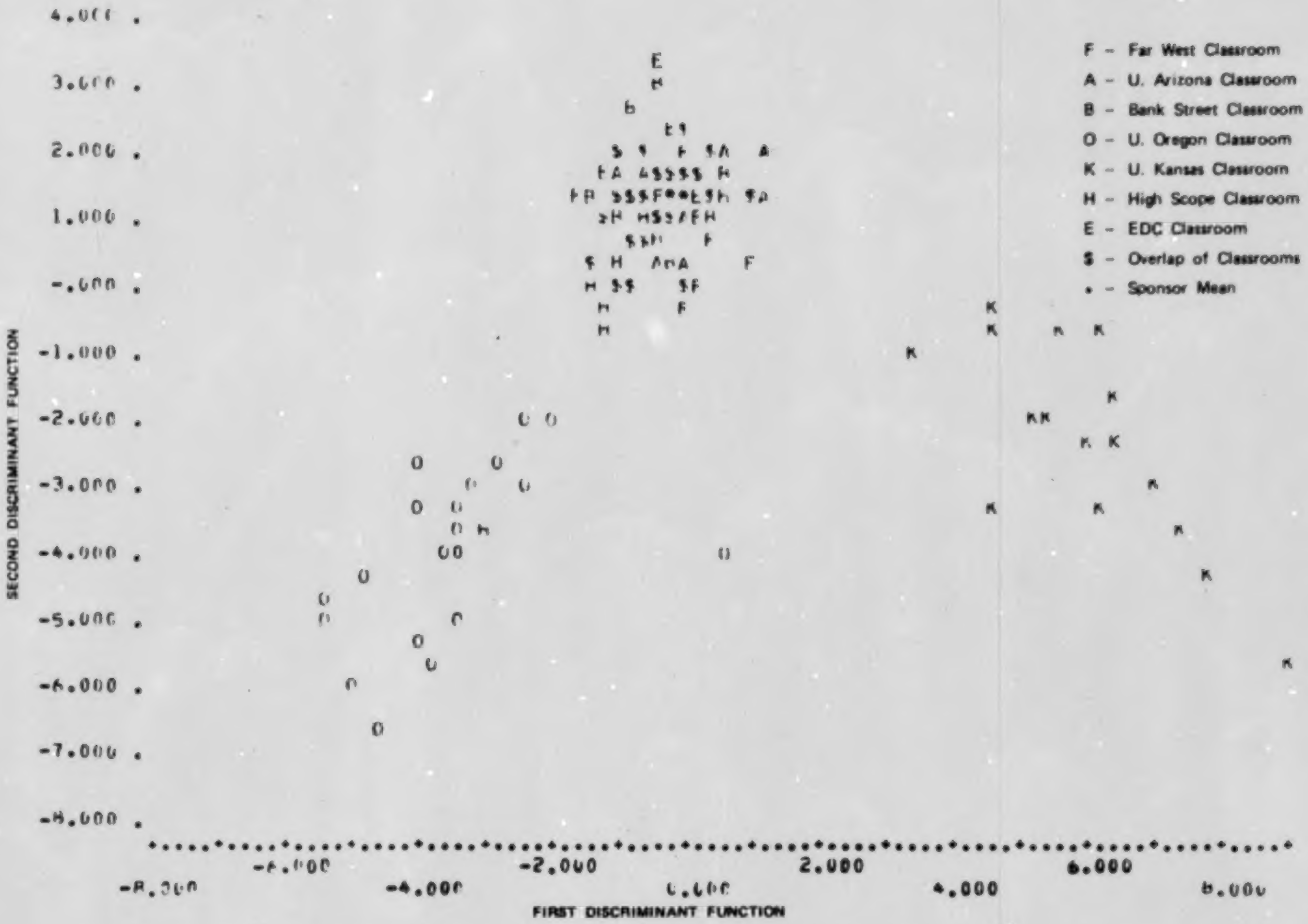

FIGURE 35 PLOT OF FIRST DISCRIMINANT FUNCTION AGAINST THE SECOND DISCRIMINANT FUNCTION—FMO VARIABLES FIRST GRADE

Table 95

STANDARDIZED COEFFICIENTS FOR THE DISCRIMINANT ANALYSIS: THIRD GRADE, FMO VARIABLES

Var. No.	Variable Name	Within Sponsor S.D.	Discriminant Functions 1	2	3
350a	Child questions to adults	1.11	-.44	.06	- .32
360a	Child responses, academic	3.27	-.32	-.01	.76
363a	Child group responses to adult academic command, request, or direct question	1.55	.54	.66	- .91
372a	Child presenting information to a group	.59	-.15	.05	- .29
394a	All adult acknowledgment to children	1.39	.36	-.26	.27
398a	All adult praise to children	1.03	.33	.39	.49
399a	Adult reinforcement with token, academic	[illegible].67	.39	-.58	.14
405a	All adult corrective feedback to children	2.02	.50	-.31	.36
412a	Adult feedback to child response to adult academic command, request, or direct question	1.45	.29	.19	-1.01
438a	Adult communication or attention focus, one child	5.73	-.03	-.60	- .76
440a	Adult communication or attention focus, small group	4.99	-.38	-.27	.76
465a	Adult feedback to children for behavior	1.01	-.33	-.03	- .79
509c	Child self-instruction, academic	8.88	.50	.08	- .15
546c	Child waiting	1.83	.55	-.36	.10

DISCRIMINANT FUNCTIONS EVALUATED AT THE SPONSOR MEANS

Sponsor	Discriminant Functions 1	2	3
Far West	- .56	.01	-1.02
University of Arizona	-2.04	- .00	1.43
Bank Street College	.56	-1.02	1.03
University of Oregon	1.43	3.43	.11
University of Kansas	3.47	-1.69	.27
High/Scope	- .37	- .77	-1.01
EDC	-1.24	-1.21	-1.20

University of Arizona and EDC are at the extreme negative end of the dimension with a mean of -2.04, -1.24 respectively. University of Kansas and University of Oregon are at the extreme positive end with means of 3.47 and 1.43, respectively. University of Arizona and EDC have relatively high means on Var. 350a (Child questions to adults) and relatively low means on Var. 509c (Child self-instruction, academic) and Var. 546c (Child waiting). On the other hand, University of Oregon has an extremely high mean on Var. 363a (Child group response to adult academic command, request, or direct question), as was found in first grade. University of Kansas has a relatively high mean on Var. 509c (Child self-instruction, academic). In addition, Var. 398a (All adult praise to children) and Var. 399a (Adult reinforcement with token, academic), for which University of Kansas displays extremely high means, have moderately high positive coefficients that tend to enhance the extremely high position of University of Kansas on the first dimension.

The second discriminant function appears to be differentiating the University of Oregon classrooms in the positive direction and the University of Kansas classrooms in the negative direction from the other classrooms. Variable 363a (Child group responses to adult academic command, request, or direct question) has a high positive scaled coefficient. Variable 438a (Adult communication or attention focus, one child) and Var. 399a (Adult reinforcement with token, academic) have high negative coefficients. The University of Oregon has a very high mean of 5.92 on Var. 363a (Child group responses to adult academic command, request of direct question), and a very low mean of 14.14 on Var. 438a (Adult communication or attention focus, one child), as shown in Appendix R. It appears that the high negative weight on Var. 399a (Adult reinforcement with token, academic) has the effect of depressing the values of the University of Kansas classrooms on the second discriminant function below that of the other sponsors. Thus, the use of direct questions to groups and limited focus on one child by the University of Oregon and the use of tokens by the University of Kansas make these sponsors relatively unique on the second function.

The plot of the first discriminant function against the second discriminant function is given in Figure 36 for third grade FMO variables. As in the other plots, the classrooms of the University of Kansas model and the University of Oregon model tend to cluster apart from other classrooms.

The third FMO function at third grade level bears considerable similarity to the third FMO function at first grade level, except that the direction of the function is reversed (i.e., the signs of the weights are in opposite directions and the sponsor means have opposite signs). Variable 360a (Child responses, academic), Var. 440a (Adult communication or attention focus, small group), and Var. 398a (All adult praise to children) have large positive weights. Large negative weights are found for Var. 412a (Adult feedback to child response to adult academic command, request, or direct question), Var. 363a (Child group responses to adult academic command, request, or direct question),

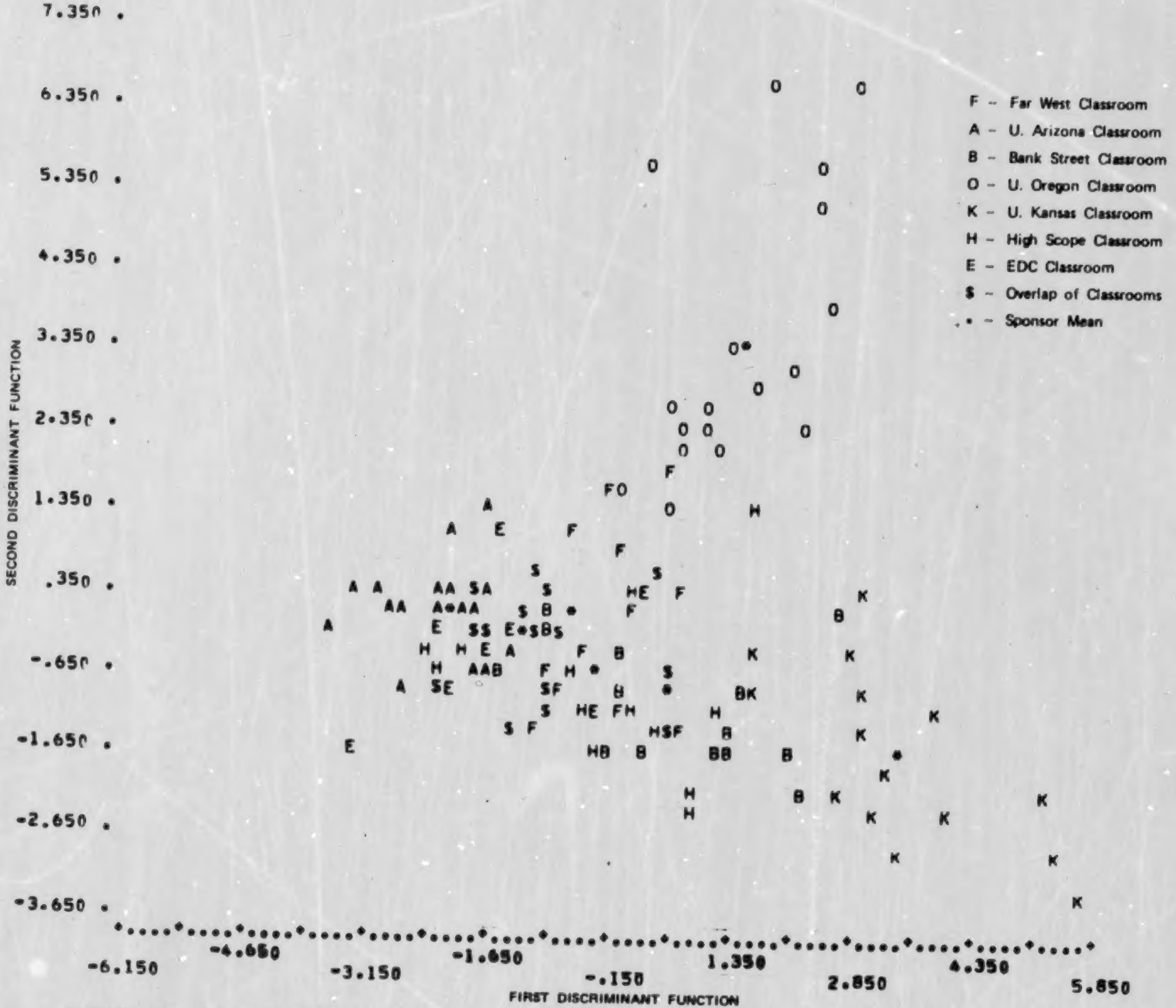

FIGURE 36 PLOT OF FIRST DISCRIMINANT FUNCTION AGAINST THE SECOND DISCRIMINANT FUNCTION—FMO VARIABLES THIRD GRADE

Var. 438a (Adult communication or attention focus, one child), and Var. 465a (Adult feedback to children for behavior). The University of Arizona is at the positive extreme of the third function, with Bank Street fairly close to it. Far West, High/Scope and EDC are clustered at the negative end of the third function. Extensive use of questions and feedback by adults seems to be the most characteristic feature of the negative end of this dimension.

e. The FMO Variables--University of Oregon and University of Kansas Excluded--First Grade

In all the analyses carried out, the classrooms associated with the University of Kansas and the University of Oregon were clearly distinguished from each other and from the classrooms of the other sponsors. In order to examine the differences among the classrooms of the other five sponsors, we performed a discriminant analysis on the FMO variables for the first grade with the classrooms of University of Kansas and the University of Oregon omitted. The scaled coefficients for the first three discriminant functions are given in Table 96. The discriminant functions evaluated at the sponsor means are at the lower part of Table 96. Thirteen variables entered the analysis.

Although it appears that the Kansas and Oregon findings did obscure the subtler differences among the other programs, the third function with Kansas and Oregon present was similar in effect to the first function with those two sponsors deleted (Table 96). The first discriminant function differentiates University of Arizona classrooms from those of the other sponsors. Of the thirteen variables included, nine had high scaled coefficients in either the positive or negative direction. This makes it very difficult to interpret the dimension in simple terms. The variables that appear to differentiate University of Arizona classrooms from the other classrooms are: Var. 454a (Child's extended response to questions), where the University of Arizona classrooms had a mean that was about one standard deviation larger than the next largest mean, and Var. 440a (Adult communication or attention focus, small group). Both variables are considered critical to the implementation of the Arizona model.

The second discriminant function differentiates the High/Scope program from the others. The variables that have high positive scaled coefficients and relate to High/Scope's program are:

- Var. 342a (Adult to child, verbal).
- Var. 363a (Child group responses to adult academic command, request, or direct question).

Table 96

STANDARDIZED COEFFICIENTS FOR THE DISCRIMINANT ANALYSIS: FIRST GRADE, FMO VARIABLES
(University of Oregon and University of Kansas Omitted)

Var. No.	Variable Name	Within Sponsor S.D.	Discriminant Functions		
			1	2	3
342a	Adult to child, verbal	1.94	-1.20	1.51	.76
350a	Child questions to adults	.92	.54	-1.26	.29
360a	Child responses, academic	3.03	- .57	- .99	-.51
363a	Child group responses to adult academic command, request, or direct question	.87	.77	.59	.45
374a	Adult instruction, academic	3.15	.27	- .16	.77
388a	Child task-related comments to adults	1.00	1.16	- .66	-.54
398a	All adult praise to children	.57	- .21	- .06	.62
412a	Adult feedback to child response to adult academic command, request, or direct question	1.47	.16	.74	-.18
440a	Adult communication or attention focus, small group	4.78	-1.00	.23	-.11
441a	Adult communication or attention focus, large group	5.53	- .48	- .59	-.08
444a	Adult movement	1.67	- .40	.26	.02
454a	Child's extended response to questions	.43	-1.01	- .02	.10
510c	Child self-instruction, objects	4.77	.08	.46	.10

DISCRIMINANT FUNCTIONS EVALUATED AT THE SPONSOR MEANS

Sponsor	Discriminant Functions		
	1	2	3
Far West	.47	- .99	1.24
University of Arizona	-2.40	.03	- .14
Bank Street College	.79	- .08	- .66
High/Scope	.70	1.86	.37
EDC	.88	- .69	- .87

- Var. 412a (Adult feedback to child response to adult academic command, request, or direct question).

- Var. 510c (Child self-instruction, objects).

Large negative weights were obtained for Var. 350a (Child questions to adults), Var. 360a (Child responses, academic), Var. 388a (Child task-related comments to adults), and Var. 441a (Adult communication or attention focus, large group).

Figure 37 displays the plot of the first discriminant function against the second discriminant function for first grade FMO variables excluding Universities of Oregon and Kansas. Classrooms associated with the University of Arizona model cluster on the middle left side; most of the classrooms associated with the High/Scope model cluster in the upper portion of the plot. The other sponsors tend to cluster together in an undifferentiated mass.

2. Classification of Classrooms by Sponsor

Table 97 displays the results of the classification procedure for each of the four data sets. Each row entry in the table is the number of the sponsor's classrooms that were classified into the sponsor's program identified by the column label. The last row indicates how Non-Follow Through classrooms were classified among sponsors. Non-Follow Through classrooms were classified in this way so that we could examine the relative degree to which the processes in Non-Follow Through classrooms are different from the various Follow Through programs. For the Follow Through classrooms the numbers on the main diagonal represent classrooms that were correctly classified. The numbers off the main diagonal represent classrooms that were misclassified; that is, classrooms that were not identified as belonging to the correct sponsor. Misclassification occurs when scores on the observed variables for a given classroom are more similar to the mean score for a sponsor other than the correct one. The Non-Follow Through classrooms cannot be included as correctly or incorrectly classified since there was no Non-Follow Through group included in the classification scheme. For Non-Follow Through, we are interested in the pattern of classification.

a. Classification of Sponsor's Classrooms

If the seven sponsors included in this study have distinct programs, as measured by the COI, then we would expect the preponderance of classrooms to lie along the main diagonal. This is what actually occurred.

Of the 132 first grade classrooms, 83% were correctly categorized on the basis of the nineteen CCL and PEI variables and 78% were correctly categorized on the basis of the fifteen FMO variables.

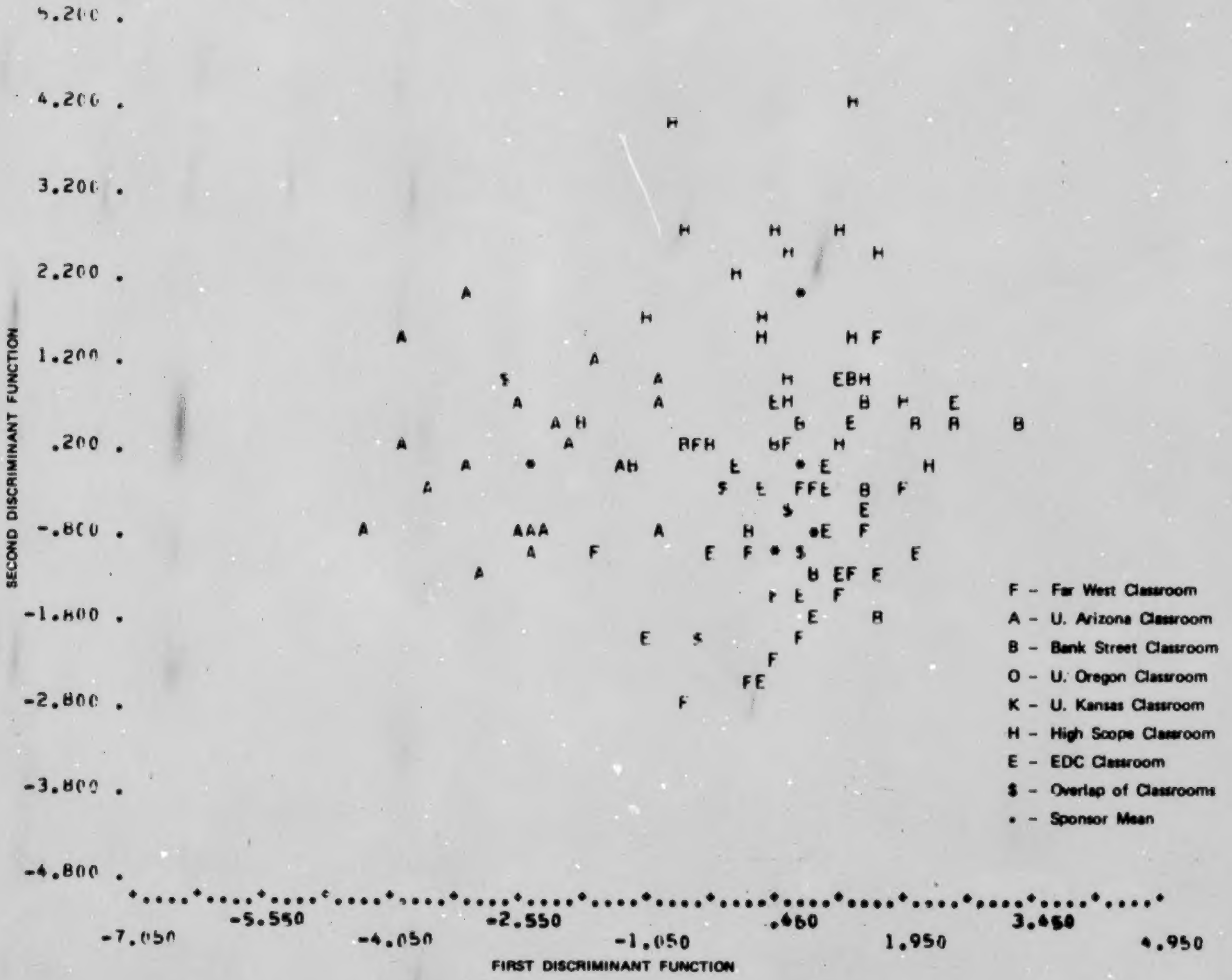

FIGURE 37 PLOT OF FIRST DISCRIMINANT FUNCTION AGAINST THE SECOND DISCRIMINANT FUNCTION—FMO VARIABLES FIRST GRADE (UO AND UK OMITTED)

Table 97

CLASSIFICATION OF CLASSROOMS BY SPONSOR

PEI and CCL Variables, First Grade

	Classrooms Identified as Sponsor						
Sponsor	Far West	Univ. of Arizona	Bank Street	Univ. of Oregon	Univ. of Kansas	High/ Scope	EDC
Far West	18	2	0	0	0	0	0
University of Arizona	0	17	2	0	0	2	1
Bank Street College	1	2	13	0	0	1	1
University of Oregon	0	0	0	19	0	0	0
University of Kansas	0	0	0	0	14	2	0
High/Scope	0	1	2	1	1	13	0
EDC	2	0	2	0	0	0	15
Non-Follow Through	6	6	5	5	0	2	10

PEI and CCL Variables, Third Grade

	Classrooms Identified as Sponsor						
Sponsor	Far West	Univ. of Arizona	Bank Street	Univ. of Oregon	Univ. of Kansas	High/ Scope	EDC
Far West	15	2	2	0	0	0	0
University of Arizona	0	17	2	0	0	5	0
Bank Street College	3	1	11	0	0	0	3
University of Oregon	0	0	0	17	1	0	0
University of Kansas	0	0	1	1	13	0	0
High/Scope	2	3	0	0	1	12	1
EDC	2	0	5	0	0	0	10
Non-Follow Through	10	0	7	16	0	0	3

FMO Variables, First Grade

	Classrooms Identified as Sponsor						
Sponsor	Far West	Univ. of Arizona	Bank Street	Univ. of Oregon	Univ. of Kansas	High/ Scope	EDC
Far West	15	1	3	0	0	0	1
University of Arizona	0	19	2	0	0	0	1
Bank Street College	2	2	10	0	0	1	3
University of Oregon	0	0	0	19	0	0	0
University of Kansas	0	0	0	0	16	0	0
High/Scope	2	0	0	1	0	13	2
EDC	3	1	1	0	0	3	11
Non-Follow Through	9	5	8	0	0	6	6

FMO Variables, Third Grade

	Classrooms Identified as Sponsor						
Sponsor	Far West	Univ. of Arizona	Bank Street	Univ. of Oregon	Univ. of Kansas	High/ Scope	EDC
Far West	13	3	0	0	0	3	0
University of Arizona	1	20	0	0	0	1	2
Bank Street College	0	1	15	0	0	1	1
University of Oregon	1	0	0	16	0	0	1
University of Kansas	0	0	1	0	14	0	0
High/Scope	0	3	1	1	0	9	5
EDC	0	0	0	0	0	1	16
Non-Follow Through	6	1	7	4	1	10	7

Of the 130 third grade classrooms, 73% were correctly categorized on the basis of the seventeen CCL and PEI variables and 79% were correctly categorized on the basis of the fourteen FMO variables. The number of classrooms that were misclassified ranged from 23 to 34.

As might be expected from the results of Section B-1, University of Kansas and University of Oregon programs are most distinct. Their classrooms are rarely confused with the classrooms of other sponsors and other sponsors' classrooms are rarely identified with them. A high percentage of the classrooms of the University of Oregon and University of Kansas programs are correctly classified on every analysis performed. The rate of correct classification was at least 85% and reached 100% in three cases. Very few classrooms from other sponsors are misclassified as University of Oregon or University of Kansas classrooms.

To highlight this result, Table 98 was created, showing the number of classrooms misclassified, and the number of correct classifications summed over all four analyses. Note that each classroom was classified twice--once on the basis of the environmental variables, and a second time on the basis of the FMO variables. Each entry indicates the number of instances over the four analyses when a sponsor's classroom (row) was misclassified into another sponsor's program (column).

There were 114 instances of misclassification, or 22% of the 524 classifications made over the four analyses. The data for University of Oregon and University of Kansas were placed at the ends of the table to make it clearer that University of Oregon and University of Kansas classrooms were rarely misclassified and the classrooms of other programs were rarely classified in University of Oregon and University of Kansas programs. There are five instances of High/Scope misclassified as University or Oregon or University of Kansas (see High/Scope row of Table 98) but none of the other four sponsors are ever misclassified as University of Oregon or University of Kansas.

Table 98 reveals no other pattern of clusterings among the other sponsors. Far West classrooms were confused most often with the University of Arizona and Bank Street programs; while the University of Arizona classrooms were confused most often with Bank Street and High/Scope programs. Bank Street classrooms are most frequently confused with Far West, University of Arizona, and EDC programs. EDC is confused most frequently with Far West and Bank Street. Finally, High/Scope is the only sponsor that had instances of confusion with all other sponsors.

There are two factors to be considered in the distinctiveness of the University of Oregon and the University of Kansas--from one another and from other sponsors' classrooms. There is the fact that both of these programs specify behavior on the part of the teacher that is readily observable and quite atypical of generally practiced classroom teacher behavior. For example, in the first grade, University of Kansas teachers are instructed to give out plastic tokens to children

Table 98

NUMBER OF MISCLASSIFICATIONS AND CORRECT CLASSIFICATIONS SUMMED OVER THE FOUR DATA SETS*

Sponsor	Classrooms Identified with the Wrong Sponsor							Total Wrongly Classified	Total Correctly Classified
	Far West	Univ. of Arizona	Bank Street	High/ Scope	EDC	Univ. of Oregon	Univ. of Kansas		
Far West	X	8	5	3	1	-	-	17	61
University of Arizona	1	X	6	8	4	-	-	19	73
Bank Street College	6	6	X	3	8	-	-	23	49
High/Scope	4	7	3	X	8	3	2	27	47
EDC	7	1	8	4	X	-	-	20	52
University of Oregon	1	-	-	-	1	X	1	3	71
University of Kansas	-	-	2	2	-	1	X	5	57
Total								114	410

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*Each classroom was classified twice--once using the PEI-CCL variables and once using the FMO variables--for a total of 524 classifications in first and third grades.

for certain desired behaviors. University of Oregon teachers are instructed to get responses from all children in the small instructional group when they pose a question. This, too, is atypical, since children in most first grade classes (including children in Kansas classes) are more often asked individually for answers. Bank Street, University of Arizona, High/Scope, Far West, and EDC teachers are performing differently from one another. The different emphases of the programs show up in the frequency patterns for different teacher behaviors. But these programs do not each have a unique behavior captured by a unique variable.

The second factor responsible for the special distinctiveness of these two sponsors is the nature of the COI and the variables created from it. The detailed level of the coded behaviors and the fineness of the variables defined in the instrument favors distinguishing behavioristic models one from another. A set of variables defined more grossly, including patterns of behavior or styles rather than single activities might distinguish Bank Street and Far West classrooms from one another as reliably as University of Kansas and University of Oregon classrooms are distinguished now by the present set of variables.

b. Classification of Non-Follow Through Classrooms

The classification functions developed for the Follow Through classrooms were used to classify the Non-Follow Through classrooms in order to examine the relative degree to which the processes in Non-Follow Through classrooms are similar to the various Follow Through programs. The results are displayed in the last row entry for each data set in Table 97.

The University of Kansas, again, stands out as distinct. No Non-Follow Through classrooms were categorized with the Kansas program with the exception of one classroom in the FMO variables, third grade data set. On the other hand, the physical environment, grouping arrangements, and activities in Non-Follow Through classrooms may be similar to the University of Oregon classrooms, relative to other sponsors, especially in the third grade. For the third grade, 16 out of the 36 Non-Follow Through classrooms were classified with the University of Oregon program. The reduced use of small groups in the third grade, and the continued emphasis on academic activities such as numbers, math, and arithmetic in the University of Oregon third grade program may explain the affinity of Non-Follow Through classrooms to this sponsor.

Few Non-Follow Through classrooms were identified with the High/Scope program based on the PEI and CCL variables. Two classrooms were identified with High/Scope at the first grade level and none were identified with High/Scope at the third grade level.

C. Summary

At the beginning of this chapter, four questions were posed. The first was: What, if any, are the major dimensions that differentiate the classrooms of the several sponsors? With the possible exception of a "degree of structure" dimension, the discriminant functions on which the sponsors differed did not seem to represent abstract concepts, such as "individualization of instruction" or "child initiation" versus "responsiveness" but were dominated by one or two very specific classroom process variables, such as "Large group with aide/Math" or "Adult reinforcement with token, academic." One or two individual variables shared by one or two sponsors seem to be the best discriminators.

The next question was: What observation variables contribute to these dimensions? This must be answered separately for the PEI/CCL analyses and FMO analyses. For the PEI/CCL analysis, the first and third grade results are very similar. Table 99 shows the observation variables with high scaled coefficients on the first two dimensions.

The results for the FMO analyses (Table 100) differed between first and third grades. The fact that the University of Kansas classrooms phase out their use of material rewards (tokens) by the third grade may partially explain the differences. In first grade, the first canonical variable separates University of Kansas and University of Oregon from one another on the basis of tokens versus group responses. The second separates both sponsors from the others.

In the third grade, the first discriminant function does the same thing (University of Kansas and University of Oregon versus others) as the second discriminant function does in first grade. The "tokens" variable no longer distinguishes University of Kansas from University of Oregon, and another difference among sponsors dominates.

In this discussion of observation variables with high-valued coefficients, we have also partially answered our third question: How are sponsors differentiated on these dimensions? In all four analyses and in the classification procedure the classrooms associated with the University of Oregon and the University of Kansas models tended to cluster apart from each other and apart from other sponsors. In a separate analysis without these two sponsors' classrooms, the University of Arizona was distinguished from the remaining four sponsors on the basis of Var. 454a (Child's extended response to questions) and Var. 440a (Adult communication or attention focus, small group). High/Scope was differentiated from the other four on the basis of variables indicating a high level of verbal interaction between adults and children and, as would be expected from their Piagetian model, Var. 510c (Child self-instruction, objects). The third discriminant function distinguished Far West Lab from EDC and Bank Street on the basis of child questioning and all adult praise.

The last question was: To what degree can classrooms be identified with their correct sponsor by using the classroom observation data? The

Table 99

ANALYSES OF PEI AND CCL VARIABLES

A. First discriminant function

	First Grade Variables	Third Grade Variables
Large positive weights	All children independent	All children independent
	Personalized instruction in reading	Teacher with one child
	Puzzles, games/academic activities	Arts, crafts
Large negative weights	Small group of children with any adult	Small group with aide/Math
	Large group with aide/Math	Large group with aide/Math

B. Second discriminant function

	First Grade Variables	Third Grade Variables
Large positive weights	Small group of children with any adult	Wide variety of activities, over one day
	Large group with aide/Math Numbers, math, arithmetic Aide with small group	Small group of children with any adult
Large negative weights	Math or science equipment/Academic activities	Numbers, math, arithmetic
	Wide variety of activities, over one day	All children independent

Table 100

ANALYSES OF FMO VARIABLES

A. First discriminant function

	First Grade Variables	Third Grade Variables
Large positive weight	Adult reinforcement with token, academic	Child questions to adult
Large negative weight	Child group responses to adult academic command, request, or direct question	Child group responses to adult academic command, request, or direct question All adult corrective feedback to children

B. Second discriminant function

	First Grade Variables	Third Grade Variables
Large positive weight	Adult communication or attention focus, large group	Adult communication or attention focus, one child
Large negative weight	Child group responses to adult academic commands, request or direct question All adult praise to children	Child group responses to adult academic command, request, or direct question

answer is that they can be classified with a high degree of accuracy overall. Out of a total of 524 classifications, 410 were correct. University of Kansas and University of Oregon classrooms are rarely misclassified as belonging to another sponsor. The remaining five sponsors' classrooms are more confusable among themselves but only rarely with University of Oregon or University of Kansas. A few High/Scope classrooms were classified as belonging to University of Oregon (three instances) or University of Kansas (two instances). In the large majority of cases, however, classrooms affiliated with a particular sponsor were correctly identified with that sponsor.

The Non-Follow Through classrooms were most often classified as Far West, University of Arizona, Bank Street, University of Oregon, and EDC classrooms. On the third grade physical environment and checklist of classroom grouping and activities, the Non-Follow Through classrooms were classified as University of Oregon classrooms 16 out of 36 times. It is notable that the Non-Follow Through classrooms were rarely classified as either University of Kansas or High/Scope classrooms. The utility of this analysis is to provide a description of the Non-Follow Through classrooms. Such classifications will aide in understanding the partial correlations of instructional processes and child outcomes, which used all classrooms, and are presented in Chapter VII. For instance, if variables which describe the University of Oregon model are positively related to scores on the MAT reading, not only will the process variables of the University of Oregon load on that variable, so also will all of the Non-Follow Through classrooms which operate similarly to the University of Oregon.

Chapter VII

INSTRUCTIONAL PROCESSES AS RELATED TO CHILD OUTCOMES

All of the information presented on program implementation in Chapters V and VI would be of little value if we did not believe that these instructional models have an impact on child growth and development. Since it seems clear at this point that the sponsor's innovations were implemented in the classroom, we turn now to the investigation of the effects of sponsor-specified instructional processes upon the children. The data reported here were computed over all classrooms, separated only by grade level. This procedure was used in order to investigate instructional processes and their relationship to child outcomes regardless of where they occurred. Since many of the process variables which are correlated with child outcomes do describe components of the models--especially as related to the structure or flexibility of the model--we have also reported sponsor mean scores on the outcome variables. This allows comparisons to be made between the overall correlations and individual sponsor scores.

This study is reported in two sections: Section A gives an analysis using partial correlations and Section B reports regression analyses. Both techniques were used to investigate the relationships between instructional processes and child outcomes. Table 101 presents, for each sponsor and for Non-Follow Through, the number of sites and classrooms that were used in the analyses, the partial correlations, and the regression analysis. In order for a classroom to be included in these analyses, at least 20% of the children in the classroom had to have baseline test data.

A. Analysis Using Partial Correlations

1. Methodology

This section deals with correlational data that have been adjusted for the baseline entering Wide Range Achievement Test (WRAT) scores. Partial correlations were carried out using child behaviors and test scores as outcomes (see Table 102). In the first analysis, six observed child behavior variables were correlated with 28 instructional process variables for both first and third grades. First, instructional process data were collected on two days separate from the child observations. The child behavior data were then collected on one day by observing four children per classroom and observing each child five times (for a total of 20 observations per classroom). The 28 process variables were chosen by the authors on the basis of what processes might be expected according to previous analysis (Stallings, 1973) to relate to the child

Table 101

NUMBER OF CLASSROOMS AND SITES INCLUDED IN THE PARTIAL CORRELATIONS AND REGRESSION ANALYSES BY SPONSOR AND GRADE LEVEL*

Sponsor	First Grade		Third Grade	
	Number of Classrooms	Number of Sites Represented	Number of Classrooms	Number of Sites Represented
Far West Labs	12	3	14	4
University of Arizona	14	4	2	1
Bank Street College	11	4	7	2
University of Oregon	5	2	4	1
University of Kansas	17	5	12	4
High/Scope	13	4	0	0
EDC	12	3	6	2
Non-Follow Through	24	-	13	-
Total number of classrooms	108		58	

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*All classrooms are in the entering kindergarten (EK) grade level.

Table 102

PARTIAL-CORRELATION ANALYSES

	Number of Process Variables	Number of Classrooms
Child Behaviors		
First Grade	28*	105
Third Grade	28	58
Days Absent		
First Grade	340	108
Third Grade	340	58
Raven's--Third Grade	340	58
Coopersmith--Third Grade	340	58
IAR--Third Grade	340	58
MAT		
First Grade	340	108
Third Grade	340	58

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*The 28 variables are a subset of the 340 variables used in the other analysis.

behaviors. Other process variables might also correlate significantly with these behaviors but the selection of the 28 was an attempt to keep the analysis as simple as possible. As Table 102 indicates, all of the classrooms in the observation sample that were tested did not have individual children observed; e.g., individual children in one New York district were not observed due to parental requests, and one day of child observations were lost in the mail from Newark. Thus, the number of classrooms included in the analysis of child behaviors is limited to the number of classrooms having both individual child observations and baseline test data.

For a more complete analysis of the other outcome measures, 340 instructional variables were correlated with absence data and test scores for the first and third grades separately. For the first grade, the MAT reading and arithmetic test scores were used. For the third grade, in addition to the MAT reading and arithmetic, the Raven's Coloured Progressive Matrices, the Intellectual Achievement Responsibility Scale (IAR), and the Coopersmith Self-Esteem Inventory scores were used in the analysis. Since there are 340 instructional process variables, to simplify reporting only significant correlations ($p < .05$) are reported for the test data.

The problems of interpreting correlational data need to be mentioned. They concern such pitfalls as capitalizing on chance results and drawing invalid inferences from the correlations. The problem of capitalizing on chance is compounded by the large number of tests of significance that were computed. Of the 340 partial correlations computed with data on child absence and test scores, approximately 17 significant correlations would be expected to occur by chance if the variables were statistically independent. In the correlations on child absence, there were 56 first grade and 65 third grade correlations that were found to be significant. The problem is that there is no way of estimating which correlations occurred by chance. Variables which correlate similarly at both first and third grades probably can be interpreted with more confidence. The strongest type of statement that can be made when interpreting these correlations takes the form: "in classrooms where teachers were observed to be more positive toward children, the absence rate of children was lower." In all the results to be reported, it must be understood that correlations are compared between class averages. Inferences about the meaning of correlations at the individual student level are unwarranted.

We cannot infer causal relationships based on correlational findings. We adjusted for the baseline WRAT scores hoping to eliminate some of the spurious relationships; e.g., classes that have, on the average, a larger proportion of bright children may tend to have a higher average of socioeconomic status, have fewer absences, and have higher test scores. Thus, the partial correlation was computed in an attempt to remove associations between process and outcome that might be due to the general level of children in a particular classroom. The results from these studies must be considered exploratory and useful primarily for generating hypotheses for other studies.

2. Relationships Between Selected Child Behaviors and Instructional Variables

Follow Through sponsors and educators in general feel that although the development of basic skills is important, it is also desirable for children to develop such attributes as task persistence, cooperation, and independence. While these attributes are elusive, we have been able to operationally define and systematically observe some components of these behaviors. The expansion of the SRI Classroom Observation Instrument (COI) procedure for this purpose was stimulated by several sponsors who, early in the evaluation, said, "If you want to know whether we are implemented, you must observe our children." For this reason, our system was modified to observe individual children. These child observations have been used not only to evaluate sponsor implementation, but also to measure behaviors such as child task persistence, cooperation, independence, and so on.

To investigate the utility of these behaviors as child outcome measures, partial correlations were computed. The study is based on 105 first grade and 58 third grade Follow Through and Non-Follow Through classrooms (see Table 102). Six child behaviors were selected as outcome variables: independence, task persistence, cooperation, question asking,* verbal initiative,* and self-esteem.* The data were collected on one day and comprise 20 child-focused observations. As previously described, 28 instructional process variables were selected for use in the correlations (see Table 103). These data were collected on two days separate from the child-focused observations in activity- or in adult-focused observations.

Special caution is needed in interpreting the relations between the instructional variables and child behaviors discussed in this section. The two sets of data were obtained from classroom observations, but on separate days. However, some correlations may be due to the interdependence of the variables. For example, the child independence rate may be lower in situations where the instructional process requires frequent intervention by adults. Such program differences will most certainly affect the occurrence of the child behavior. The optimal procedure to obtain measures of these child behaviors would be in standardized situations where the children would have equal opportunities to demonstrate the abilities. However, given the importance of these child behaviors and the absence of standardized measures, it was decided that it would be better to use the measures that could be obtained from the classroom observation data than to ignore these variables. The results may be viewed as a source of hypotheses for future studies that focus on the child behaviors evaluated in this section.

a. Independent Children

1) First Grade Findings

The variable "independent children" in our study is defined as a child or a group of children engaged in any task without an adult. Table 104 provides the means and standardized deviations for each sponsor and Non-Follow Through. This type of independent behavior was more likely to be found in classrooms that allowed children to select their own seating and groups for part of the time (Var. 24); where a wide variety of activities were available (Var. 82, 83); where there were an assortment of audiovisual and exploratory materials available (Var. 237, 238); where adults provided individual attention (Var. 104), and were responsive to children (Var. 365a); and where adults made friendly comments to the children (Var. 389), as shown in Table 103. In those classrooms where textbooks and workbooks were used more frequently

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*Question asking, verbal initiative, and self-esteem were analyzed for first grade only since too few significant correlations were obtained in third grade.

Table 103

PARTIAL CORRELATIONS OF INSTRUCTIONAL VARIABLES AND CHILD BEHAVIORS
FIRST (N=105) AND THIRD (N=55) GRADES
(Follow Through and Non-Follow Through)

Variables		Independence				Task Persistence				Cooperation				Initiative				Self-Esteem		Child Questions	
		1st Grade		3rd Grade		1st Grade		3rd Grade		1st Grade		3rd Grade		1st Grade		3rd Grade		1st Grade		1st Grade	
No.	Name	r	p<	r	p<	r	p<	r	p<	r	p<	r	p<	r	p<	r	p<	r	p<	r	p<
16	Child/adult ratio (Number of children over teachers, aides, and volunteers)	.23	.05	.06		.09		-.15		.02		-.18		-.17	.10	-.22	.10	-.11		-.15	
24	Child selection of seating and work groups	.36	.001	.33	.01	-.22	.05	-.08		.19	.05	.35	.01	.11		.27	.05	.14		.03	
28	Instructional materials used	-.01		-.03		.11		-.02		.09		.23	.10	-.24	.01	.13		-.08		-.07	
38	Audio visual equipment used	.13		.12		-.25	.01	-.28	.05	.15		.28	.05	-.01		.30	.05	-.03		-.12	
40	General equipment, materials used	.22	.05	.03		-.08		-.02		.09		.08		.06		.23	.10	.06		.005	
45	Total number different resource categories coded "used today" over three days	.13		.12		-.23	.05	-.25	.10	.18	.10	.37	.01	.07		.36	.01	-.05		.03	
82	Wide variety of activities, concurrent	.22	.05	.08		-.12		-.03		.15		.13		.22	.05	-.10		.22	.05	.09	
83	Wide variety of activities, over one day	.43	.001	.37	.01	-.36	.001	-.41	.01	.32	.01	.39	.01	.22	.05	.15		-.08		.14	
104	Adult with one child	.57	.001	.46	.001	-.16		-.27	.05	.08		.31	.05	.08		.55	.001	.03		.14	
236	TV/Academic Activities	-.03		-.11		-.10		-.09		-.11		.10		-.03		.19		-.02		-.03	
237	Audio visual equipment/Academic Activities	.24	.01	.28	.05	-.25	.01	-.18		-.01		-.07		.06		.28	.05	.06		-.04	
238	Exploratory materials/Academic Activities	.34	.001	.01		-.22	.05	-.26	.10	.27	.01	.37	.01	.05		.23	.10	.28	.01	-.11	
239	Math or science equipment/Academic Activities	-.18	.10	-.29	.05	.17	.10	-.04		-.18	.10	.18		-.08		-.02		.05		.11	
240	Texts, workbooks/Academic Activities	-.33	.001	-.34	.01	.31	.01	.57	.001	-.49	.001	-.48	.001	-.09		-.31	.05	.07		-.04	
241	Puzzles, games/Academic Activities	.16		.12		-.07		-.04		.09		.25	.10	.04		-.002		-.09		-.07	
357a	All adult questions to children	-.17	.10	-.17		.03		-.27	.05	-.17	.10	-.14		.50		-.16		.24	.05	-.04	
364a	Adult responses to child requests or questions, academic	.13		.31	.05	-.15		.34	.01	.04		-.02		.10		-.15		.10		.23	.05
365a	Adult responses to child requests or questions, nonacademic	.42	.001	.44	.001	-.33	.001	-.31	.05	.21	.05	.49	.001	.31	.01	.39	.01	-.10		.27	.01
375a	Adult instructs an individual child	-.09		.32	.05	.23	.05	-.06		-.17	.10	.17		.09		.43	.001	-.05		.22	.05
389a	Adult general comments to children	.22	.05	.09		-.12		-.24	.10	-.13		-.04		.25	.01	.39	.01	-.10		.36	.001
390a	Adult task-related comments to children	.12		.25	.10	-.24	.05	.44	.001	.39	.001	.31	.05	-.09		.25	.10	-.09		-.16	.10
394a	All adult acknowledgment to children	-.16		-.47	.001	.15		.31	.05	-.11		-.30	.05	-.13		-.24	.10	-.30	.01	.04	
398a	All adult praise to children	-.60	.001	-.22		.20	.05	-.41	.01	-.21	.05	-.13		-.17	.10	.02		.04		.02	
438a	Adult communication or attention focus, one child	-.01		.02		.13		-.30	.05	-.06		.02		-.01		.20		-.24	.01	.38	.001
439a	Adult communication or attention focus, two children	.29	.01	.02		-.13		.02		.28	.01	.19		.05		-.05		.42	.001	-.03	
440a	Adult communication or attention focus, small group	-.15		-.20		.19	.05	.05		.01		-.09		.04		-.13		.48	.001	-.32	.001
451a	Adult academic commands, requests, and direct questions to children	-.41	.001	-.30	.05	.07		-.35	.01	-.28	.01	-.28	.05	-.04		-.37	.01	.21	.05	.03	
452a	Adult open-ended questions to children	.16		.29	.05	-.12		-.10		.13		.29	.05	.10		.18		-.07		-.07	

Note: Underscored figures are significant.

.05 = 5 chances in 100 that the relationship would occur by chance.
.01 = 1 chance in 100 that the relationship would occur by chance.
.001 = 1 chance in 1,000 that the relationship would occur by chance.

than in other observed classrooms (Var. 240), children were not as often found to be operating independently. Adults who asked more direct questions regarding the subject matter (Var. 451a) were not as likely to have independent children. In classrooms where adults praised children frequently (Var. 398a describes praise in general, not praise for specific tasks or achievement), the children on the average were independent less often. (The negative relationship, -.60, was substantial.)

2) Third Grade Findings

As in first grade, children in third grade were more independent in classrooms where they were allowed to select their own seating and groups part of the time (Var. 24), engaged in a wide variety of activities during the day (Var. 83), had the use of audiovisual equipment (Var. 237), and received individualized attention from the adults (Var. 104 and 375a) and where adults responded to their questions (Var. 364 and 365). Classrooms where adults asked thought-provoking questions which required children to express an idea (Var. 452a) also showed more independent child behavior. However, in classrooms where adults more often asked direct questions, and children were expected to respond with known answers, children displayed less independent behavior (Var. 451). This finding was true for both grade levels.

Although the correlation between praise and independence was negative at the third grade level, it was not as strong as in the first grade. There was, however, a strong negative relationship in the third grade between adults acknowledging children and child independence. Acknowledgment and praise are very similar variables and seem to have similar relationships in the two grade levels.

These findings appear to support John Holt's description in How Children Fail of the child who is dependent upon a teacher's praise. Holt says such a child is a "teacher watcher." He has his ear pitched to hear what the teacher wants rather than behaving independently in relation to his own thoughts or tasks. This suggests that if teachers want to help children become independent in working on tasks, they should use praise sparingly and specifically; i.e., they should help the child find reward in the work itself rather than in their adult approval. Of course, we do not know whether the children in this study might be more independent if they were given the opportunity. It can be noted on Table 104 that University of Oregon and University of Kansas, which are more structured models and use a high rate of praise, were below the mean of other sponsors and of Non-Follow Through on this measure of independence. All of the other more open models except High/Scope in first grade are above the Non-Follow Through mean. Both Far West and EDC, when compared to Non-Follow Through, had especially high means in both first and third grades for independence.

Table 104

MEANS AND STANDARD DEVIATIONS OF CHILD BEHAVIOR OUTCOMES
FIRST AND THIRD GRADES*

Var.		ALL (N=105)		Far West (N=12)		University of Arizona (N=13)		Bank Street (N=11)		University of Oregon (N=5)		University of Kansas (N=16)		High/Scope (N=13)		EDC (N=12)		NFT (N=23)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
	FIRST GRADE																		
118	Child independence	28.59	14.81	41.69	9.70	30.79	11.44	35.70	5.28	24.40	7.91	5.59	3.82	26.41	12.52	38.68	11.84	29.99	12.55
573c	Child task persistence	2.60	1.60	2.00	1.60	3.09	2.17	2.00	1.31	1.93	1.40	3.55	1.52	2.05	1.16	2.29	.99	2.90	1.66
598c	Child cooperation	3.45	2.96	3.43	1.15	3.82	3.69	5.46	3.75	1.15	.73	1.64	1.51	4.22	2.88	4.28	2.25	3.18	3.43
474c	Child verbal initiative	1.44	1.15	1.29	.50	1.72	1.11	1.35	.77	.59	.44	.97	.56	2.24	1.34	2.00	1.35	.75	.61
597c	Child self-esteem	6.84	4.65	9.38	3.94	10.66	4.72	4.93	2.45	16.69	5.42	5.17	1.55	4.37	2.14	3.68	2.18	6.35	4.51
481c	Child questions to adults	.61	.49	.61	.27	.37	.23	.63	.40	.20	.14	.79	.50	.89	.63	.72	.59	.45	.52

Var.		ALL (N=58)		Far West (N=14)		University of Arizona (N=2)		Bank Street (N=7)		University of Oregon (N=4)		University of Kansas (N=12)		High/Scope (N=0)		EDC (N=6)		NFT (N=13)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
	THIRD GRADE																		
118	Child independence	29.55	17.83	38.55	7.76	35.84	9.30	23.24	11.42	30.53	10.76	10.69	11.39			45.86	25.25	31.88	18.43
573c	Child task persistence	3.00	1.64	3.43	1.70	1.07	.54	1.25	.64	2.71	.31	4.46	1.16			1.65	1.48	3.13	1.26
598c	Child cooperation	3.10	2.67	4.65	3.28	1.98	.40	3.51	2.51	1.85	1.08	1.56	1.99			2.88	1.70	3.29	2.79
474c	Child verbal initiative	1.39	1.18	1.52	1.63	2.24	.41	1.88	1.17	1.36	.49	.82	.32			1.44	.78	1.36	1.44
597c	Child self-esteem	5.62	3.42	5.97	4.56	9.38	.24	5.73	3.12	8.20	.16	5.37	1.56			1.83	1.01	5.81	3.64
481c	Child questions to adults	.88	.64	.76	.55	.96	.62	1.33	.77	.72	.31	.81	.49			.81	.51	.87	.89

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*Adjusted scores.

b. Task Persistence

1) First Grade

The next dimension to be considered is task persistence. For this study "task persistence" is defined as a child engaged in self-instruction over a designated period of time (a matter of five interaction frames). If during the task, a child became engaged in a conversation with someone else, task persistence was no longer coded; instead, his conversation was coded. The highest positive relationships indicate that task persistence occurred most often when textbooks and workbooks were used in the classroom (Var. 240). Since working with textbooks and workbooks most often requires children to be silent and solitary, and since most assignments in textbooks and workbooks require a period of self-instruction, this finding dovetails with the definition of "task persistence" as stated above. When adults instructed one child at a time (Var. 375a), the children were also more likely to be task persistent. This may be because young children often have difficulty understanding group instructions or perhaps can't get the teacher's attention. Thus, when adults instruct on a one-to-one basis, children are more likely to have a question answered or directions clarified, and therefore have the information necessary to be persistent at their tasks.

2) Third Grade

Children were more task persistent in classrooms where textbooks were used (Var. 240), in third grade classrooms as well as in first. If teachers responded to a child's questions about subject matter, offered acknowledgment for a task, or made a task-related comment (Var. 364a, 394a, 390a), the children were more likely to be task persistent. Less task persistence occurred where there was more use of audiovisual equipment and exploratory materials, and where a wide variety of activities occurred (Var. 38, 238, 83). All of these activities were likely to encourage conversation, which would end the coding of task persistence, as it is defined for this study. Also, teachers who more often asked academic questions, and praised children or interacted with them on a one-to-one basis (Var. 451a, 398a, 104), were not likely to have children who show a high rate of task persistence.*

However, Table 104 indicates that these findings in third grade cannot be generalized to a model. The University of Kansas model uses a high rate of praise; their teachers are likely to interact with one child at a time, and their mean was higher than all other sponsors and Non-Follow Through for task persistence in both grade levels. The University of Kansas does prescribe the use of desk work where text and workbooks are used, and this variable was positively correlated with task persistence in both grade levels. The findings indicate that the variable is probably not independent; task persistence cannot be coded at the same time a structured academic interaction is occurring. However, in the teacher-focused observations, University of Kansas teachers were observed to be highly interactive with children in structured academic activities; on child-focused observations, children were observed to be highly task persistent. Thus, it depends upon who was the focus of observation, as both phenomena probably occurred simultaneously.

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*Any conversation stops the coding of this nonverbal behavior.

c. Cooperation

1) First Grade

For the purposes of this study, "cooperation" is defined as two or more children working together on any joint task without an adult. Our findings indicate that this kind of cooperation was more likely to be found in situations where there were a wide variety of activities occurring throughout the day (Var. 83); where there were exploratory materials available (Var. 238); and where children were able to choose their own group (Var. 24). In classrooms where the adults interacted with two children (Var. 439a), making comments about the task (Var. 390a) and responding to their questions (Var. 365a), the children seemed more often to join each other in cooperative tasks. When textbooks and workbooks (which are solitary tasks) were used a great deal (Var. 240), the children were not likely to cooperate, as shown by a strong negative correlation of -.49. Also in classrooms where adults asked direct questions about subject matter (Var. 451c), a negative correlation with cooperation was indicated.

2) Third Grade

Classrooms in which children worked more often together cooperatively were those in which children selected their own seating and groups for part of the time (Var. 24); were offered a wide variety of activities during the day (Var. 83); and had a variety of materials available for their use (Var. 38, 45, 238). These materials included exploratory materials and audiovisual equipment. Variables 24, 83, and 238 were also significantly correlated at the first grade level. Given the opportunity to select from a variety of both activities and materials, children apparently chose more often to work together at tasks than they did in classrooms where such a selection was not offered. While a variety of materials were correlated with cooperative behavior, texts and workbooks in academic subjects showed a high negative correlation with child cooperation. When children worked with workbooks (Var. 240), they were more likely to work alone and therefore to have less opportunity to work with other children on a common task. This finding was significant for both first and third grades.

The data indicated that a negative correlation exists between child cooperation and adult instruction variables which describe adults asking children direct questions about subject matter and then acknowledging their responses (Var. 394a, 451a). Variable 451a was significant for the first grade as well. On the other hand, adults who more often interacted on a one-to-one basis with children, asked thought-provoking questions, and interacted with children by making task-related comments (Var. 104, 390a, 452a) were more likely to have children who cooperated. Importantly, Variable 390a (Adult task-related comments to children) also was positively correlated with child cooperation at the first grade level. A correlation was shown between children cooperating and adults responding to children in nonacademic situations (Var. 365a) at both first and third grade levels. Apparently children need adults to respond to their questions as they engage in cooperative tasks.

The variables that were positively correlated with cooperation are also those that describe the more open models which, in their stated goals, encourage child-initiated activities and cooperation among children. Data in Table 104 indicate that all of the five more open models had means higher than Non-Follow Through in the first grade. Only Far West and Bank Street had means higher than Non-Follow Through in the third grade. It must be further noted that those variables describing in part the more structured classrooms of University of Oregon and University of Kansas had negative correlations with the SRI-defined child behaviors of cooperation, and the means of these two sponsors were lower than those of all other sponsors and Non-Follow Through in both first and third grades. The implication here is that children are likely to work together more often on joint projects without adults in the open or flexible models than in the more structured models.

d. Verbal Initiative

1) First Grade

For the purposes of this report, verbal initiative was recorded whenever a child asked questions, instructed someone else, engaged in a task-related conversation, made general comments, or provided feedback to other children. Children demonstrated more verbal initiative in classrooms where a wide variety of activities occurred (Var. 82, 83). This kind of environment usually allows children to interact more freely--that is, to talk and work together. In classrooms where adults engaged in more general conversation and were responsive to children's questions (Var. 389a, 365a), children also showed more verbal initiative. The reader is reminded that these are two separate sets of data, and the findings are not as circular as they seem since the variables relating to children's questions and those of adult responses were collected on separate days. Understandably, in classrooms where instructional materials were used often (Var. 28), children were less likely to take verbal initiative; i.e., children would be engaged with materials rather than with each other. Another variable of interest which suggests a trend but does not reach significance by our standards is adults praising children (Var. 398a). The correlation was -.17 with $p < .10$. However, the possibility is raised that in classrooms where adults used a high rate of praise the children were less likely to show verbal initiative.

2) Third Grade

Classroom environments where children selected their own seating or work group part of the time and had a wide range of resource materials, particularly audiovisual equipment (Var. 24, 38, 237), had children who show more verbal initiative. This type of environment evidently permits more interaction, such as questioning or commenting. In classrooms where textbooks and workbooks were more frequently used, the children demonstrated less verbal initiative (Var. 240). Working with standard texts and workbooks is a more solitary and silent activity which is not as likely to give children the opportunity for verbal initiative.

Adults who offered individualized attention (Var. 104, 375a), were responsive to children in a nonacademic situation (Var. 365a); and made general comments (Var. 389a) were more likely to have children who showed verbal initiative. Variable 365a, (Adult responses to child requests or questions, nonacademic) had a high correlation with child initiative both at the first and third grade levels. However, children were less likely to show verbal initiative in classrooms where adults asked a higher rate of direct questions about subject matter (Var. 451a). This kind of interaction makes the adult the "initiator" and the child the "responder."

The variables positively related to verbal initiative were those which described the more open classrooms. In both grade levels all five of the more open models had means higher than Non-Follow Through and the two more structured models.

e. Observed Self-Esteem

Child self-esteem, for the purposes of this study, is operationally defined as existing where a child offers his opinion--he may praise or acknowledge the work of another child. This child also makes statements about his self-worth and extends his response when asked questions. These are all verbal expressions of self-esteem. The authors have hypothesized that a child might feel reasonably good about himself if he made such statements. (Even though this is a limited definition of self-esteem, the authors feel it is important to make an effort to develop such a variable, since paper and pencil tests and other assessments of self-esteem are also quite limited.)*

Our data suggested that more self-esteem was evident in classrooms where children took part in a wide variety of activities (Var.

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*Only first grade data are presented here since there were too few correlations of note in the third grade data to warrant interpretation in this report.

82) and used exploratory materials in academic subjects (Var. 238). Both of these variables described situations that allowed children to explore and possibly to make statements about being able to manage equipment themselves or to praise or acknowledge each other's accomplishments. Adults who asked children questions (Var. 451a) or addressed them in small groups (Var. 440a) were more likely to have children who expressed self-esteem. Perhaps in these small groups the children had opportunities to extend their responses to questions and to express their self-worth. Two strange findings are that children were less likely to express self-esteem when adults spoke to one child at a time (Var. 438a) or when children were acknowledged (Var. 394a). Self-esteem, as the variable is defined here, required children to make specific statements which apparently were more likely to occur in a small group or with other children rather than on a one-to-one basis with an adult. Acknowledging children, telling them their behavior or products were acceptable (Var. 394a) which might be expected to enhance a child's attitude toward himself, was adversely related to a child's statement of self-esteem.

The variables which positively related to self-esteem described a mixture of the open and structured classrooms. And, in both first and third grades, the two highest means were those of University of Oregon, a structured model, and University of Arizona, a more open model.

f. Question Asking

Educators have long recognized the value of a child's asking questions as a primary means to gain information. Previous research indicates that question-asking is positively related to test scores.* In the present study we found that first grade children asked more questions where there was a one-to-one relationship of adults with children in classrooms (Var. 438a), where adults responded to children's questions (Var. 364a, 365a), and where adults made general conversational comments to children (Var. 389a). Children asked fewer questions where adults focused their communication toward a small group (Var. 440a).**

The largest correlation of a process variable and child question asking was with "Adult communication focus--one child." It should be remembered that in the University of Kansas, as well as several of the more open models, the adults focus their communication toward an individual child. The data on Table 104 indicate that University of Kansas was second only to High/Scope in child question-asking in the first grade. These models differ greatly in their theoretical approach in regard to use of materials, classroom activities, structure, and control systems. Thus, it seems that the question-asking behavior of children is more related to individualized communication patterns than it is to other components of the educational models.

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*Previous SRI observational studies (Stallings, Baker, and Steinmetz, 1972, and Stallings, 1973) report a significant relationship between children asking questions and scores on achievement tests and attitudinal tests.

**Third grade data are not interpreted here because there were too few significant correlations to warrant analysis.

3. Relationships Between Days Absent and Instructional Process Variables

Days absent is an important outcome variable for several reasons; i.e., many school budgets are determined by the average daily attendance. Also, days absent can be used as an indicator of attitude toward school. It is well known to parents and teachers that if a child enjoys school, he may attend even if he does not feel well. If he does not enjoy school, he may be more likely to be absent whenever he feels any discomfort. The data presented here represent only days absent without a control for the length of the school year.

Correlations were computed for classroom means of the number of days absent and 340 selected instructional variables, first adjusting for the baseline WRAT score. (As stated previously, approximately 17 significant correlations could have occurred by chance.) Table 100 shows the correlations that were significant ($p < .05$ to $p < .001$) for either the 108 first grade or the 58 third grade classrooms. A positive correlation between an instructional variable and days absent means that children were absent more often in classrooms where that instructional process occurred. A negative correlation between an instructional variable and days absent means that children were absent less often in classrooms where that process occurred. There is no way to determine whether these are causal relations, but they are suggestive for further investigation.

a. First Grade Classrooms

Materials used in the classroom were recorded on the PEI and CCL. Two very similar variables recording the use of audiovisual equipment (Var. 38 and 237) showed a negative correlation with absenteeism (see Table 105). Apparently, first grade classrooms in which audiovisual equipment is used as an instructional aid experience less absenteeism than those classrooms in which audiovisual equipment is less frequently used.

Activities of the classroom personnel and grouping arrangements of children were related to the rate of pupil absenteeism in the first grade. The variables indicating that the teacher or aide was engaged in a task without children (Var. 85, 103, 108, and 231) showed a positive correlation with days absent. Thus, in classrooms where the

Table 105

PARTIAL CORRELATION OF DAYS ABSENT WITH INSTRUCTIONAL VARIABLES
108 FIRST GRADES AND 58 THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade		Third Grade	
No.	Name	r	p<	r	p<
MATERIALS					
38	Audio visual equipment used	-.19	.05	-.06	
237	Audio visual equipment/Academic Activities	-.22	.05	-.09	
241	Puzzles, games/Academic Activities	-.08		-.32	.05
ACTIVITIES					
70	Sewing, cooking, pounding	-.11		-.32	.05
245	Story, music, dancing/Longitudinal	-.04		-.28	.05
252	Sewing, cooking, pounding/Longitudinal	-.11		-.28	.05
256	Practical skills acquisition/Longitudinal	.16		-.26	.05
TIME SPENT AND ACADEMIC INTERACTION					
140	Total weight in math groupings	.11		.32	.05
163	Total weight in reading groups	.18		.32	.05
228	Total weight in arts, crafts groupings	.04		.38	.01
GROUPINGS					
Adults in the Classroom					
108	Overall occurrences of adults without children	.22	.05	.08	
262	Average number of adults in the classroom/ Longitudinal	.26	.01	.09	
Adults Without Children					
85	Teacher without children	.25	.01	-.20	
103	Adult without children	.22	.05	.08	
229	Teacher involved/Classroom Management	.03		-.27	.05
231	Volunteer involved/Classroom Management	.29	.01	.36	.01
Individualized Attention					
86	Teacher with one child	-.29	.01	-.16	
104	Adult with one child	-.36	.001	-.19	
109	One child with any adult	-.35	.001	-.21	

Table 105 (Continued)

PARTIAL CORRELATION OF DAYS ABSENT WITH INSTRUCTIONAL VARIABLES
108 FIRST GRADES AND 58 THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade		Third Grade	
No.	Name	r	p<	r	p<
Individualized Attention (Continued)					
124	One child with aide/Math	-.23	.05	-.20	
132	One child with any adults/Math	-.22	.05	-.15	
143	One child with teacher/Reading	-.26	.01	-.22	
155	One child with any adults/Reading	-.34	.001	-.22	
164	Personalized instruction in reading	-.34	.001	-.24	
257	Teacher with one child, academic activities/Longitudinal	-.23	.05	-.12	
259	Volunteer with one child, academic activities/Longitudinal	-.22	.05	-.10	
261	Any adult with one child, any activity/ Longitudinal	-.31	.01	-.15	
421a	Adults attentive to individual children	-.26	.01	-.12	
Adults with Two Children					
121	Two children with teacher/Math	.00		-.29	.05
125	Two children with aide/Math	.01		.35	.01
144	Two children with teacher/Reading	-.19	.05	-.19	
156	Two children with any adults/Reading	-.20	.05	-.21	
Adults with Small Group					
122	Small group with teacher/Math	-.07		-.34	.01
Adults with Large Group					
89	Teacher with large group	.06		.33	.05
95	Aide with large group	.31	.01	.40	.01
112	Large group of children with any adult	.23	.05	.47	.001
123	Large group with teacher/Math	.11		.44	.001
127	Large group with aide/Math	.30	.01	.18	
135	Large group with any adults/Math	.29	.01	.52	.001
146	Large group with teacher/Reading	.12		.33	.01
158	Large group with any adults/Reading	.25	.01	.44	.001
Independent Children					
114	One child independent	-.27	.01	-.25	
115	Two children independent	-.23	.05	-.20	

Table 105 (Continued)

PARTIAL CORRELATION OF DAYS ABSENT WITH INSTRUCTIONAL VARIABLES
108 FIRST GRADES AND 58 THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade		Third Grade	
No.	Name	r	p<	r	p<
Independent Children (Continued)					
118	All children independent	-.17		-.36	.01
136	One child independent/Math	-.22	.05	-.29	.05
137	Two children independent/Math	-.03		-.26	.05
138	Small group of children independent/Math	-.09		-.41	.01
142	All children independent/Math	-.18		-.48	.001
159	One child independent/Reading	-.33	.001	-.27	.05
160	Two children independent/Reading	-.27	.01	-.21	
165	All children independent/Reading	-.14		-.31	.05
204	Two children independent/Science	.20	.05	-.16	
INTERACTIONS					
Child Questioning					
346a	Child commands, requests, and direct questions, nonacademic	-.26	.01	-.03	
347a	Child commands, requests, and direct questions, academic	-.26	.01	-.12	
348a	Child open-ended questions, nonacademic	.17		-.31	.05
350a	Child questions to adults	-.32	.001	-.15	
450a	All child open-ended questions	.14		-.32	.01
478a	Child commands, requests, and direct questions, academic	-.05		-.32	.05
Adult Questioning					
351a	Adult commands, requests, and direct questions to group of children, nonacademic	-.04		.30	.05
353a	Adult commands, requests, and direct questions to groups of children, academic	.20	.05	-.25	
355a	Adult open-ended questions to children, nonacademic	.00		-.28	.05
452a	Adult open-ended questions to children	-.05		-.36	.01

Table 105 (Continued)

PARTIAL CORRELATION OF DAYS ABSENT WITH INSTRUCTIONAL VARIABLES
108 FIRST GRADES AND 58 THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade		Third Grade	
No.	Name	r	p<	r	p<
Child Responsiveness					
363a	Child group responses to adult academic, command, request, or direct questions	.22	.05	.25	
368a	Child responses to adult open-ended questions	-.04		-.36	.01
371a	Child extended response to adult open-ended question	-.16		-.31	.05
585c	Child's extended response to questions	-.17		-.34	.01
Adult Responsiveness					
364a	Adult responses to child requests or questions, academic	-.26	.01	-.10	
365a	Adult responses to child requests or questions, nonacademic	-.24	.05	-.18	
367a	Adult responds to child question with direct question	-.22	.05	-.01	
453a	Adult response to child's question with a question	-.23	.05	-.02	
495a	Adult responses to child requests or questions, academic	-.07		-.26	.05
Adult Feedback					
400a	Adult reinforcement with token, behavior	.33	.001	-.02	
403a	Adult praise, behavior	.32	.001	.02	
405a	All adult corrective feedback to children	.09		.48	.001
409a	Adult negative corrective feedback, behavior	.04		.37	.01
410a	Adult positive corrective feedback, other task-related	.13		.40	.01
411a	Adult negative corrective feedback, other task-related	.07		.36	.01
432a	Adult punishment of children	.13		.54	.001
447a	Adult neutral corrective feedback, task-related	.02		.38	.01
448a	Adult neutral corrective feedback, behavior	.16		.41	.01
458a	All adult negative corrective feedback	.05		.51	.001
465a	Adult feedback to children for behavior	.21	.05	.34	.01

Table 105 (Continued)

PARTIAL CORRELATION OF DAYS ABSENT WITH INSTRUCTIONAL VARIABLES
108 FIRST GRADES AND 58 THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade		Third Grade	
No.	Name	r	p<	r	p<
Adult Feedback (Continued)					
470a	All adult neutral corrective feedback	.09		.38	.01
567c	Total interactions, behavior control	.20	.05	.16	
578c	Adult neutral corrective feedback, task-related	.21	.05	.41	.01
579c	Adult neutral corrective feedback, behavior	.25	.01	.29	.05
589c	All adult negative corrective feedback	.14		.32	.01
596c	Adult feedback to children for behavior	.25	.01	.30	.05
601c	All adult neutral corrective feedback	.19	.05	.30	.05
Instruction					
375a	Adult instructs an individual child	-.06		-.34	.01
Child Attending					
416a	Children attentive to adults, nonacademic	.06		.35	.01
417a	Children attentive to adults, academic	.28	.01	.45	.001
464a	Child attentive	.14		.29	.05
Conversational Statements					
344a	Individual child verbal interactions with adult	-.17		-.29	.05
388a	Child task-related comments to adults	-.01		-.28	.05
516c	Social interaction among children	.03		.43	.001
Affect					
460a	All child positive affect	-.20	.05	-.27	.05
462a	All positive behavior	-.27	.01	-.28	.05
463a	All negative behavior	.02		.48	.001
Child Behavior					
573c	All child nonverbal	.21	.05	.07	

Table 105 (Concluded)

PARTIAL CORRELATION OF DAYS ABSENT WITH INSTRUCTIONAL VARIABLES
108 FIRST GRADES AND 58 THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade		Third Grade	
No.	Name	r	p<	r	p<
Communication Focus					
438a	Adult communication or attention focus, one child	-.25	.01	-.28	.05
441a	Adult communication or attention focus, large groups	.15		.37	.01
471a	Adults attentive to large group	.21	.05	.34	.01
Miscellaneous					
	Adult movement	.30	.01	.14	

teacher or aide was frequently involved in activities that did not include children, such as grading papers, preparing assignment or cleaning up, the children were absent more often. Children were also absent more frequently from classrooms where adults worked with large groups of children (Var. 95, 112, 127, 135, 158, and 471a).

On the other hand, individualized attention (Var. 86, 104, 109, 124, 132, 143, 144, 155, 156, 160, 164, 421a, and 438a) appears to be an important factor in daily attendance. These thirteen variables relating to individualized attention and absenteeism can be found on Table 105. All of these variables indicating individualized attention showe a negative correlation with days absent from school. The four highest correlations were Var. 104 (Adult with one child), Var. 109 (One child with any adult); Var. 155 (One child with any adult in reading); and Var. 164 (Personalized instruction in reading).

Two variables which recorded the number of adults (Var. 108 and 262) in the classroom showed a positive correlation with number of days absent, which may indicate that a higher adult-student ratio is only one aspect to be considered when evaluating the effectiveness of classroom personnel. What the adult is doing may be more important than sheer number of adults. Adults who were less involved with the children or who worked only with large groups were likely to have a higher absence rate in their classrooms, while adults who interacted with children on a one-to-one basis had a lower absentee rate among their children.

When children were allowed to work on their own without adults (Var. 114, 115, 136, 159, and 160), the data indicated they attend school more frequently. These variables encompassed an overall independence rate of children involved in tasks. In particular, they described one or two children working independently in reading or math.

In a classroom atmosphere where children asked questions of the adults (Var. 350a), children tended to be absent less frequently. Three variables which describe child questioning (Var. 346a, 347a, and 350a) were negatively correlated with absenteeism. Also, in classrooms where adults responded to children's questions (Var. 364a and 365a), the children were absent less frequently. Two other variables which reflect specific types of adult responses to the questions of children also were related to children being present more often in school. They describe an adult responding to a child's question with another question (Var. 367a, 453a). All of the preceding variables describe situations where adults are responsive to children, which suggests that adults are encouraging the children to think by asking further questions, rather than just providing an answer.

The rate of absenteeism tended to increase in situations where children observed an adult in an academic activity (Var. 417a); i.e., the children were not actively engaged in their learning but, instead, were listening and observing. Also, classrooms that had small groups of children responding in chorus to adult questions during academic instruction (Var. 363a) showed a higher absentee rate. This variable suggests a lack of individualized attention, which was previously identified as being related to a lower absentee rate.

When there was a high rate of adult feedback for child behavior in a classroom, children were more likely to be absent. This occurred whether the feedback was praise or tokens given for acceptable behavior or whether the feedback was for unacceptable behavior, with correction or control exerted (Var. 400a, 403a, 465a, 567c, 579c, and 596c).

In those classrooms where more positive behavior (defined as smiling or laughing, Var. 460a and 462a) was evident, there was less child absence. This finding replicates previous findings (Stallings, Baker, Steinmetz, 1972).

b. Third Grade Classrooms

The kind of materials used in the classroom, which was related to the children's rate of absenteeism, changes from first to third grade. In third grade classrooms where puzzles and games (Var. 241) were used in academic activities, the children were absent less (see Table 105); whereas in first grade classrooms, lower child absenteeism was related to higher use of audiovisual equipment.

In the third grade, certain classroom activities seemed to be associated with the rate of absenteeism. In classrooms where children had activities that allowed for sewing, cooking, carpentry, stories, music, dancing, or practical skill acquisition (Var. 70, 245, 252, and 256), the children were absent less frequently. Children were absent more frequently when they were involved in reading and math (Var. 140 and 163) for a higher percentage of the time.

In direct opposition to the first grade findings regarding the teacher or aide without children, in classrooms where the third grade teacher was more often involved in classroom management tasks (Var. 229), the children were in school more often. Third grade children may have less need of the teacher's attention and may be more independent than first grade children; so that when the teacher engages in classroom management tasks, the absence rate is not adversely affected.

Note: As in the first grade, if the third grade children spent a large portion of the school day in large groups with adults, the absentee rate was high. Seven variables which represented children in large groups with adults (Var. 89, 95, 112, 123, 135, 146, and 158) showed a positive correlation with the absentee rate. These were not limited, but referred to large group activities in reading and math and all other activities. Two FMO interaction variables (Var. 441a and 471a) also indicated that when adults focused their attention on a large group, children were absent more frequently. Variable 471a was also significant for first grade children. Conversely, when children received individualized attention (Var. 121, 344a, 375a, and 438a), they tended to be absent from school less often. Frequency of adult attention to one child (Var. 438a) also was related to less absenteeism in first grade classrooms.

As in the first grade, in third grade classrooms where children were more independent the children tended to be absent less often. These correlations occurred in all instances of children operating independently in activities and they also occurred whether the child was working alone, with another child, or in a small group in math (Var. 118, 136, 137, 138, 142, 159, and 165).

Third grade classrooms where children asked questions (Var. 348a, 450a, and 478c) and where adults were responsive to the children (Var. 495c) showed a lower rate of absenteeism.

In classrooms where adults asked children open-ended questions (Var. 355a, 452c) children were absent less often. This finding is further emphasized by two variables which relate to child responses to open-ended questions: when children responded to an adult's open-ended question (Var. 368a) or gave an extended response to any type of question (Var. 371a, and 585c), the rate of absenteeism was lower. However, in classrooms where adults commanded or asked direct questions of groups of children in nonacademic activities (Var. 351a), children were absent more often.

In classrooms where children were more often not interacting but were listening to or observing adults (Var. 416a, 417a, 464a) absentee rates were higher. A high correlation (.45) with absence was found for children attentive to or observing adults in an academic activity (Var. 417a). This was true for both first and third grade classrooms on Var. 417a where the children's outward behavior was passive, which indicates that they may not have been sufficiently involved in the academic activity.

Variables which reflect another dimension of an interactive environment indicated that when the conversation was task-related (Var. 388a), the children were absent less often. However, when the interaction was purely social (Var. 516c), the children were more likely to be absent. (Social interactions included all of the general comments children make among themselves, both positive and negative; these were mainly greetings, personal compliments or criticisms.)

Consistent with some of the first grade findings, many types of adult feedback were related to children's absence from school. Not surprisingly, adult punishment of children (Var. 432a) had the highest correlation of .54. This means that in classrooms where children were often punished, children also were absent more often. Another high correlation with absenteeism was all adult negative corrective feedback (Var. 458a) with a correlation of .51. There are a total of 15 feedback variables that showed a significant correlation with absenteeism. In the first grade, the feedback variables were correlated primarily with behavior. However, in the third grade, the feedback variables were related to nonacademic task activities and academic activities as well as to behavior. In any event, whether the feedback was negative, neutral, or positive, it had an adverse relationship with the third grade children's school attendance.

The correlations of the variables which describe feelings or affect were similar for third grade and first grade. Classrooms with more positive behavior (Var. 460a, 462a) showed a lower absence rate. In addition, in third grade classrooms where more negative behavior (Var. 463a) was observed, the children were absent more often.

c. Conclusions

These data suggest that in both first and third grade classrooms, children may be absent less frequently in classrooms where there is a higher rate of child independence, child questioning, adults responding, individualized instruction, and open-ended questioning. Also, in classrooms where children and adults show more positive affect (smiling or laughing) the children may be absent less often.

Children were absent more often in both first and third grade classrooms where they worked in large groups more often and where adults used direct questions in academic work and frequent corrective feedback more often.

Findings for the third grade indicate that in classrooms where children were punished more often, they also were absent more often.

In addition, classrooms with a higher rate of negative affect on the part of teachers and students showed a higher absence rate.

A report of sponsor absence rate by grade level indicates that at the first grade level, those sponsors who used more highly structured environments, materials, and interactions also had a higher absence rate (see Table 106). Two sponsors, Far West Labs and University of Arizona, who used a wide variety of activities and materials and have classrooms where children exhibited independent behavior, had the lowest absence rate of all sponsors at both the first and third grade levels. The data on Table 106 also indicate that the absence rate for all sponsors and Non-Follow Through diminished from first grade to third grade. While the means and standard deviations of Follow Through and Non-Follow Through were very similar, Far West's and University of Arizona's absence rates were considerably lower than Non-Follow Through rates.

Although the data are correlational and causal effects cannot be attributed to the instructional processes, the correlations are high enough, and the sample large enough, to suggest some directions for further research in absenteeism.

Table 106

MEANS AND STANDARD DEVIATIONS OF DAYS ABSENT FOR SPONSORS AND NON-FOLLOW THROUGH

	First Grade*		Third Grade*	
	Mean	Standard Deviation	Mean	Standard Deviation
Far West Lab	9.81	1.80	7.99	1.40
University of Arizona	12.37	4.34	6.34	0.78
Bank Street College	14.90	6.41	9.64	6.42
University of Oregon	17.12	3.72	12.12	1.63
University of Kansas	15.34	16.70	10.28	2.77
High/Scope	13.36	3.25	--	--
EDC	14.25	10.90	10.53	7.46
All Follow Through	14.15	6.33	9.50	4.30
Non-Follow Through	14.05	5.65	9.59	2.59

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*Adjusted scores.

4. Relationships Between Scores on the Raven's and Instructional Process Variables

Correlations (adjusted for the baseline WRAT scores) were computed using 340 instructional variables and 58 third grade classroom mean scores on the Raven's Coloured Progressive Matrices (1965). The Raven's can be described as a nonverbal perceptual problem-solving test in which children study a pattern from which a piece is missing, and then select from among several alternatives the piece that correctly completes the pattern. The test was administered in a group and some of the original items were deleted (see Appendix I for scoring procedures).

Third grade classrooms in which children scored high on the Raven's had a variety of activities occurring and a variety of materials available. Activities such as story telling, music, sewing, cooking, arts and crafts (Var. 63, 64, 70, 83, 245, 246, and 256) were among those that correlated positively with the Raven's test scores (see Table 107). Also in these classrooms, children were allowed to select their own seating and work groups while they engaged in those activities (Var. 24) and audiovisual equipment, games, toys, and exploratory materials (Var. 25, 37, 40, 44, 45, and 238) were available to them.

Table 107

PARTIAL CORRELATIONS OF INSTRUCTIONAL VARIABLES WITH RAVEN'S TEST SCORES (58 THIRD GRADE CLASSROOMS)

Variables No.	 Name	r	p<
MATERIALS			
25	Games, toys, play equipment present	.34	.01
37	Audio visual equipment present	.28	.05
40	General equipment, materials used	.26	.05
44	Total number different resource categories coded "present" over three days	.34	.01
45	Total number different resource categories coded "used today" over three days	.33	.01
238	Exploratory materials/Academic activities	.28	.05
240	Texts, workbooks/Academic activities	-.37	.01

Table 107 (Continued)

PARTIAL CORRELATIONS OF INSTRUCTIONAL VARIABLES WITH RAVEN'S TEST SCORES (58 THIRD GRADE CLASSROOMS)

Variables			
No.	Name	r	p<
ACTIVITIES			
24	Child selection of seating and work groups	.48	.001
63	Story, music, dancing	.28	.05
64	Arts, crafts	.29	.05
67	Reading, alphabet, language development	-.44	.001
70	Sewing, cooking, pounding	.27	.05
83	Wide variety of activities, over one day	.35	.01
84	Approximate number of children in the classroom in any activity	-.30	.05
245	Story, music, dancing/Longitudinal	.33	.01
246	Arts, crafts/Longitudinal	.36	.01
248	Numbers, math, arithmetic/Longitudinal	-.40	.01
249	Reading, alphabet, language development/Longitudinal	-.46	.001
256	Practical skills acquisition/Longitudinal	.31	.05
TIME SPENT AND ACADEMIC INTERACTION			
242	Percent CCLs in which an academic activity is occurring	-.31	.05
GROUPINGS			
Adults in the Classroom			
96	Overall aide occurrence	-.46	.001
108	Overall adult occurrences	-.30	.05
262	Average number of adults in the classroom/ Longitudinal	-.38	.01
Adults Without Children			
91	Aide without children	.30	.05
103	Adult without children	.38	.01
Individualized Attention			
86	Teacher with one child	.34	.01
92	Aide with one child	.34	.01
104	Adult with one child	.35	.01
109	One child with any adult	.32	.05
120	One child with teacher/Math	.27	.05
124	One child with aide/Math	.29	.05

Table 107 (Continued)

PARTIAL CORRELATIONS OF INSTRUCTIONAL VARIABLES
WITH RAVEN'S TEST SCORES (58 THIRD GRADE CLASSROOMS)

Variables			
No.	Name	r	p<
Individualized Attention (Continued)			
143	One child with teacher/Reading	.37	.01
147	One child with aide/Reading	.27	.05
155	One child with any adult/Reading	.34	.01
164	Personalized instruction in reading	.34	.01
257	Teacher with one child, academic activities/ Longitudinal	.31	.05
261	Any adult with one child, any activity/Longitudinal	.28	.05
Adults with Two Children			
148	Two children with aide/Reading	.31	.05
156	Two children with any adults/Reading	.27	.05
221	Two children with any adults/Arts and Crafts	.28	.05
Adults with Small Group			
88	Teacher with small group	-.44	.001
94	Aide with small group	-.37	.01
106	Adult with small group	-.42	.01
111	Small group of children with any adult	-.44	.001
126	Small group with aide/Math	-.46	.001
134	Small group with any adults/Math	-.40	.01
145	Small group with teacher/Reading	-.42	.01
149	Small group with aide/Reading	-.45	.001
157	Small group with any adults/Reading	-.43	.001
420a	Adults attentive to a small group	-.35	.01
440a	Adults communication or attention focus, small group	-.32	.05
Adults with Large Group			
150	Large group with aide/Reading	-.32	.05
Independent Children			
114	One child independent	.35	.01
115	Two children independent	.37	.01
116	Small group of children independent	.28	.05
118	All children independent	.42	.01
139	Large group of children independent/Math	.27	.05
142	All children independent/Math	.45	.001
159	One child independent/Reading	.39	.01
160	Two children independent/Reading	.30	.05
185	Large group of children independent/Social Studies	.26	.05
260	Children independent, academic activities/ Longitudinal	.28	.05

Table 107 (Continued)

PARTIAL CORRELATIONS OF INSTRUCTIONAL VARIABLES
WITH RAVEN'S TEST SCORES (58 THIRD GRADE CLASSROOMS)

Variables			
No.	Name	r	p<
Miscellaneous			
113	Overall occurrence of children with any adult	-.42	.01
INTERACTIONS			
Child Questioning			
346a	Child commands, requests, and direct questions, nonacademic	.29	.05
348a	Child open-ended questions, nonacademic	.33	.01
350a	Child questions to adults	.36	.01
450a	All child open-ended questions	.34	.01
477c	Child commands, requests, and direct questions, nonacademic	.29	.05
479c	Child open-ended questions, nonacademic	.33	.01
480c	Child open-ended questions, academic	.29	.05
581c	All child open-ended questions	.31	.05
Adult Questioning			
354a	Adult commands, requests, or direct questions to children	-.47	.001
357a	All adult questions to children	-.39	.01
451a	Adult academic commands, requests, or direct questions to children	-.41	.01
483c	Adult commands, requests, or direct questions to individual children, nonacademic	.33	.01
485c	Adult commands, requests, or direct questions to individual children, academic	-.27	.05
Child Responsiveness			
358a	All child response	-.38	.01
360a	Child responses, academic	-.42	.01
362a	One child responds to adult academic commands, requests, or direct questions	-.49	.001
490c	Child responses, nonacademic	.34	.01
493c	One child responds to adult academic commands, requests, or direct questions	-.36	.01
585c	Child's extended response to questions	.33	.01
Adult Responsiveness			
365a	Adult responses to child requests or questions, nonacademic	.43	.001

Table 107 (Concluded)

PARTIAL CORRELATIONS OF INSTRUCTIONAL VARIABLES
WITH RAVEN'S TEST SCORES (58 THIRD GRADE CLASSROOMS)

Variables No.	 Name	r	p<
Adult Feedback			
394a	All adult acknowledgment to children	-.45	.001
395a	Adult acknowledgment to children, academic	-.46	.001
398a	All adult praise to children	-.32	.05
399a	Adult reinforcement with token, academic	-.34	.01
400a	Adult reinforcement with token, behavior	-.27	.05
401a	Adult reinforcement with token, other task-related	-.33	.01
402a	Adult praise, academic	-.34	.01
403a	Adult praise, behavior	-.27	.05
406a	Adult positive corrective feedback, academic	-.42	.01
412a	Adult feedback to child responses to adult academic commands, requests, or direct questions	-.51	.001
457a	All adult positive corrective feedback	-.41	.01
469a	All adult reinforcement with tokens	-.34	.01
543c	Adult feedback to child responses to adult academic commands, requests, or direct questions	-.44	.001
600c	All adult reinforcement with tokens	-.35	.01
Instruction			
376a	Adult instructs a group	.30	.05
455a	All adult instruction	.29	.05
586a	All adult instruction	.28	.05
Conversational Statements			
343a	Child to adult, all verbal except response	.45	.001
387a	Child general comments to adults	.28	.05
388a	Child task-related comments to adults	.45	.001
390a	Adult task-related comments to children	.37	.01
474c	Child to adult, all verbal except response	.30	.05
476c	Verbal interactions among children	.37	.01
519c	Child task-related comments to adults	.27	.05
524c	Child corrective feedback	.42	.01
Affect			
460a	All child positive affect	.36	.01
462a	All positive behavior	.46	.001
592c	All child negative affect	.27	.05
593c	All positive behavior	.43	.001
Child Behavior			
546c	Child waiting	-.32	.05
598c	Child cooperation	.30	.05

While engaged in this variety of activities, children were most likely to be found working independently or receiving individualized attention. Variables which correlated with the Raven's test scores describe independent children in a variety of groupings. Child independence whether in large groups, small groups, or a two-child group or alone (Var. 114, 115, 116, 118, 139, 142, 159, 160, 165, 185, and 260) correlated positively with the Raven's test scores. When children are working without the assistance of an adult, they may have more opportunity to think independently and to experience the problem-solving type of learning--which may result in higher scores on such tests as the Raven's. The adults more often provided individualized attention (Var. 86, 92, 104, 109, 120, 124, 143, 147, 155, 164, 257, and 261) in classrooms where children scored high on the Raven's. Instances of adults working with two children (Var. 148, 156, and 221) also were positively correlated with the Raven's test scores.

Children in classrooms where the Raven's scores are higher seemed to ask questions more frequently, either direct open-ended questions, academic or nonacademic (Var. 346a, 348a, 350a, 450a, 477c, 479c, 480c, 581c). The important dimension is that children were asking questions of adults in the classroom. Questioning and inquiring seem to be important steps in the problem-solving process. The children asked their questions and the adults recognized them and responded (Var. 365a).

In addition to questioning, children and adults also experience other types of verbal interaction (Var. 343a, 387a, 388a, 390a, 474c, 519c) which were related to the high Raven's scores. The incidence of child task-related comments to adults (Var. 388a) had a high positive correlation (.45) and that of adult task-related comments to children also had a significant correlation. The children in these classrooms also interacted with each other (Var. 476c) as well as with the adults in the classroom. Some adult structional variables (Var. 376a, 455a, 586c) were also positively correlated.

Classrooms which showed high test scores on the Raven's also showed high occurrences of affective behavior, with children expressing both positive and negative types of behavior (Var. 460a, 462a, 592c, and 593c).

When children are working independently of adults, they sometimes cooperate and work with other children (Var. 598c) on a common task. By working together, children may learn to solve problems on their own.

A high occurrence of reading and math and the use of text and workbooks (Var. 67, 240, 242, 248, and 249) were negatively correlated with the Raven's test scores. Classrooms which emphasized reading and math skills in a structured academic format and used standardized text or workbooks may not have allowed enough time for the more flexible type of activities that relate to success on the Raven's test. At least it is clear that the instructional processes that correlated positively with scores on the MAT test are different from the processes that correlated with the Raven's test scores.* Obviously, the two tests are assessing very different skills and the development of each skill requires different treatments.

When adults frequently worked with children in either small or large groups, the children scored lower on the Raven's. Of the 11 negatively correlated instructional variables which indicated adults with small groups, eight of them had a correlation of -.40 or greater.

In those classrooms that had a high occurrence of adults asking children direct academic questions, the children scored low on the Raven's (Var. 354a, 357a, 451a, 485c). Responses to direct questions require recall of previously learned information and this approach may not stimulate an inquiry method of thinking. Children responding to adult direct questions (Var. 358a, 360a, 362a, and 493c), also had a negative correlation with the Raven's. However, children giving extended responses to adult questions (Var. 585c) had a positive correlation with the Raven's test scores.

Low scores on the Raven's were found in classroom environments where adults praised and reinforced the children, either for academics or behavior (Var. 395a, 398a, 399a, 400a, 401a, 402a, 403a, 406a, 457a, and 469a). The high negative correlation (-.51) for the traditional question-response-feedback (Var. 412a) sequence is quite interesting. This instructional process appeared to have an adverse relationship with problem solving as measured by the Raven's. Tokens for academic and behavior (Var. 399a, 400a, and 401a) also showed a negative correlation. (However, the preceding variables were positively related to reading and math scores.**) When the children gave the corrective feedback (Var. 524c), however, the correlation became positive. In such a situation, the children are not the responders but the initiators.

When children spent a good portion of their school day waiting--either for an adult or to start a new activity--they may not have had the necessary exposure to the stimuli that would enhance their perceptual problem-solving ability. The variable "Waiting" (Var. 546c) was negatively correlated with the test scores. The variables which correlated positively were those that also described the more open models. Data on Table 108 indicate that the four open models included in this analysis (Far West, University of Arizona, Bank Street, and EDC) had mean raw scores higher than those of the more structured models (University of Kansas and University of Oregon). Residual gain scores adjusted for the baseline WRAT still showed that University of Arizona, Bank Street, and EDC were

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[*] See Section VIII page

[**] See Section VIII page

Table 108

MEANS AND STANDARD DEVIATIONS ON THE RAVEN'S COLOURED PROGRESSIVE MATRICES TEST FOR SPONSORS* AND NON-FOLLOW THROUGH

Sponsor and Number	Var. 440/Fall 1969 WRAT		Var. 448/Raven's Raw Score		Relative Difference in Adjusted Raven's Scores Among Sponsors and NFT*	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Far West (N=14)	40.78	3.31	21.16	1.81	.42	1.69
University of Arizona (N=2)	28.20	.28	19.83	1.65	1.69	1.59
Bank Street (N=7)	32.42	6.78	19.54	2.56	.63	1.65
University of Kansas (N=4)	33.50	6.37	18.39	2.92	-.84	1.95
University of Oregon (N=12)	35.16	5.82	17.59	2.37	-1.95	1.42
EDC (N=6)	26.38	6.95	19.02	1.09	1.25	1.71
Non-Follow Through (N=13)	38.75	8.71	20.74	2.12	.52	1.40

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*Too few High/Scope third grade classrooms were both tested and observed to permit including the High/Scope model in the analysis.

higher than Non-Follow Through.* Far West's baseline WRAT score was so much higher than other sponsors that an adjustment for baseline shows very little gain for them even though their raw score was higher than all other sponsors and Non-Follow Through. Conversely, the process variables which correlated negatively with the Raven's describe, for the most part, more structured models and both University of Oregon and University of Kansas scored lower on the Raven's than other sponsors.

The reader is reminded that only a few classrooms per sponsor are represented in this analysis; nevertheless, the findings in the partial correlation analysis and the scores on the test for each sponsor support the notion that children are likely to do better in perceptual problem solving tests if they are in classrooms that use instructional processes similar to those in the more open models.

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*These adjusted scores indicate that relative to all classrooms in the sample these sponsors have gained when entering ability is parceled out. This is identified as a residual gain score. The mean of the total classrooms is zero; therefore, some sponsors will have a minus score relative to all others.

5. Relationships Between Scores on the Coopersmith and Instructional Process Variables

The Coopersmith test is an inventory of self-esteem. The instrument is designed to assess the child's feelings about himself and his school. It also assesses how he thinks others feel about him. An SRI-trained tester reads aloud a series of statements to the class (for example, "I'm a good worker"). The child is asked to decide whether the statement is "like me" or "not like me." The test is scored by totalling the responses indicating a positive sense of self-esteem. (See Appendix S for test items.) Correlations were computed using 340 instructional process variables and Coopersmith test scores (partialling out Wide Range Achievement Test scores). Only fourteen instructional variables were found to be significantly correlated. Since all of these could have occurred by chance, the results of this analysis will not be discussed. An analysis of variance examining sponsor means also showed no difference among sponsor or Non-Follow Through adjusted mean scores.

6. Relationships Between Scores on the Intellectual Achievement Responsibility Scale (IAR) and Instructional Process Variables

This test is designed to assess the extent to which the child accepts responsibility for his success and failures in intellectual or academic achievement situations.

a. Procedures

The tester describes a positive or negative achievement experience and two alternative explanations of the events. One response indicates internal control and the other indicates external control. The child is asked to mark the response that best describes the way he really feels. Appendix S lists the test items. Although a single score is usually computed for the IAR, two scores were computed for this analysis, for the IAR administered to 58 third grade classrooms. The investigators thought it would be interesting to see whether children differed in their view of responsibility toward their own success and their own failure. The first scale used items on the IAR that describe only why the child has succeeded. The second scale used items that describe only why the child has failed. The scales were independent, and a child could score high on both scales.

Correlations were computed between the instructional process variables and the two scores on the IAR--and the data were adjusted for the baseline Wide Range Achievement Test test score. These tests were administered in third grade only.

b. Findings

1) Responsibility for Success

On the 17 test items that related to the child's view of his success, the data indicate that children attributed their success to themselves more often in classrooms where children were allowed to engage in activities independently (see Table 109, Var. 117, 118, 136, 162, 184). Two related variables that described adults involved in classroom management type of activities that do not include children (Var. 85, 103) also support the notion that children accepted the responsibility for their own success when they were allowed to be independent in their work. This type of positive relationship was also found where children initiated requests and asked direct questions (Var. 477c). A somewhat baffling positive relationship is that with transitional activities (Var. 79). This variable described those times when children were cleaning up the room, getting ready to leave the room, washing their hands, or changing to some other activity. It is a little difficult to say that in classrooms where transitional activities took place more often, the children took more responsibility for their success. Perhaps during these transitory times the children had a greater opportunity to fend for themselves and thus felt more responsible for their success. Certainly, the previously mentioned correlations suggested that the more opportunity the child has to behave in an independent manner, the mo he takes responsibility for his success.

Conversely, on the average children scored lower on responsibility for their success when they were more often in a relationship with an adult (Var. 113). This finding is notable for any small group variable (Var. 88, 106, 145, 157). Children did not accept responsibility for their success (thus indicating they may have thought the adult was responsible for their success) when adults questioned them, (Var. 357a) or when they were part of a group responding to the adult's questions (Var. 494). In order to accept responsibility for success, the child may need to be the initiator and not the responder.

A variable created by the SRI staff called "self-esteem" is composed of four variables: child praise, child corrective feedback, statements of self worth, and extended responses (Var. 466a). In classrooms where children demonstrated this type of self-esteem, they did not take responsibility for their success as often. The SRI variable self-esteem is a composite that needs further refining. We cannot explain this strong negative relationship between the SRI indicators of self-esteem and the child's accepting responsibility for success. Test

Table 109

IAR-SUCCESS SCALE
(58 Third Grade Classrooms)

Variables No.	 Name	r	p<
ACTIVITIES			
79	Transitional activities	.46	.001
TIME SPENT AND ACADEMIC INTERACTION			
17	Total class duration	-.29	.05
GROUPINGS			
Adults Without Children			
85	Teacher without children	.31	.05
103	Adult without children	.27	.05
Adults with Small Group			
88	Teacher with small group	-.29	.05
106	Adult with small group	-.27	.05
145	Small group with teacher/Reading	-.39	.001
157	Small group with any adults/Reading	-.30	.05
Independent Children			
117	Large group of children independent	.44	.001
118	All children independent	.33	.01
136	One child independent/Math	.34	.01
162	Large group of children independent/Reading	.34	.01
184	Small group of children independent/Social Studies	.27	.05
Miscelianeous			
113	Overall occurrence of children with any adult	-.33	.01
INTERACTIONS			
Child Questioning			
477c	Child commands, requests, and direct questions, non-academic	.29	.05

Table 109 (Concluded)

IAR-SUCCESS SCALE
(58 Third Grade Classrooms)

Variables			
No.	Name	r	p<
Adult Questioning			
357a	All adult questions to children	-.34	.01
Child Responsiveness			
494c	Child group responds to adult academic command, request, or direct question	-.26	.05
Conversational Statements			
466a	Child self-esteem	-.39	.001
	Add: 52 Child praise 53 Child corrective feedback 93 Child statements of self-worth 114 Child's extended response to questions		

data on Table 110 indicate that Far West Lab and EDC, who had the highest residual gain scores on "Independence" in the child behavior outcomes, also showed the most gain in the Success scale of the IAR. The lowest residual gain score was that of University of Kansas and some of their process variables were the same as those which correlated negatively with the IAR Success scale. The findings indicate that less structured classrooms which allowed children more choice and independence, as illustrated by Far West and EDC, were more likely to have children who took responsibility for their own success as measured on the IAR.

2) Responsibility for Failure

Classrooms where children took responsibility for their failure were classrooms where children were most often in large group instruction (Var. 107, 112, 127, 135, 146, 158, 162, 223, 441a, 471a), as shown in Table 111. They took responsibility for their failure in classrooms that had a higher child-to-adult ratio, that emphasized academic subjects (reading in particular), and that used a stimulus-response-feedback type of interaction during academic instruction (Var. 15, 16, 67, 163, 240, 242, 435a, 485c, 582c). It is curious that children in this type of more structured academically oriented environment

Table 110

SPONSOR AND NON-FOLLOW THROUGH MEANS AND STANDARD DEVIATIONS ON THE INTELLECTUAL ACHIEVEMENT SCALE

							Relative Difference in Adjusted IAR Scores Among Sponsors and Non-Follow Through			
	Var. 440/Fall 1969 WRAT		IAR - Success (raw score)		IAR - Failure (raw score)		Success (gain score)		Failure (gain score)	
Sponsor and Number	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Far West (N=14)	40.78	3.31	13.54	1.08	9.23	.93	.13	1.03	-.80	.92
University of Arizona (N=2)	28.20	.28	12.65	1.20	8.48	1.86	-.07	1.22	-1.08	1.85
Bank Street (N=7)	32.42	6.78	13.04	.64	9.20	1.21	.01	.52	.52	1.14
University of Kansas (N=4)	33.50	6.37	13.12	.82	10.07	1.31	-.10	.60	.30	1.12
University of Oregon (N=12)	35.16	5.82	12.82	.58	10.14	.54	-.38	.46	1.12	.31
High/Scope (N=0)	*	*	*	*	*	*	*	*	*	*
EDC (N=6)	26.38	6.95	13.14	1.17	9.61	1.17	.41	1.03	.11	.99
NFT (N=13)	38.25	8.71	13.53	1.02	10.82	1.12	.16	.97	.88	1.13

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*These adjusted scores indicate that relative to all classrooms in the sample these sponsors have gained when entering ability is parceled out. This is identified as a residual gain score. The mean of the total classrooms is zero; therefore, some sponsors will have a minus score relative to all others.

Table 111

IAR--FAILURE SCALE
(58 Third Grade Classrooms)

Variables			
No.	Name	r	p<
MATERIALS			
26	Games, toys, play equipment used	-.30	.05
44	Total number different resource categories coded "present" over three days	-.30	.05
237	Audio visual equipment/Academic activities	-.27	.05
238	Exploratory materials/Academic activities	-.26	.05
239	Math or science equipment/Academic activities	-.29	.05
240	Texts, workbooks/Academic activities	.26	.05
241	Puzzles, games/Academic activities	-.35	.01
ACTIVITIES			
24	Child selection of seating and work groups	-.45	.001
62	Group time	-.46	.001
63	Story, music, dancing	-.30	.05
67	Reading, alphabet, language development	.31	.05
82	Wide variety of activities, concurrent	-.40	.01
83	Wide variety of activities, over one day	-.43	.001
244	Group time/Longitudinal	-.43	.001
245	Story, music, dancing/Longitudinal	-.29	.05
246	Arts, crafts/Longitudinal	-.36	.01
247	Guessing games, table games, puzzles/Longitudinal	-.28	.05
254	Dramatic play, dress-up/Longitudinal	-.35	.01
256	Practical skills acquisition/Longitudinal	-.28	.05
TIME SPENT AND ACADEMIC INTERACTION			
163	Approximate number of children involved in reading, all days observed	.32	.01
242	Percent of CCLs on which an academic activity is occurring	.31	.05
435a	Total academic verbal interactions	.30	.05
GROUPINGS			
Adults in the Classroom			
15	Child/teacher and aide ratio (Number of children over the number of teachers and aides)	.36	.01

Table 111 (Continued)

IAR--FAILURE SCALE
(58 Third Grade Classrooms)

Variables			
No.	Name	r	p<
Adults in the Classroom (Continued)			
16	Child/adult ratio (Number of children over the number of teachers, aides, and volunteers)	.34	.01
Adults Without Children			
231	Volunteer involved/Classroom management	.29	.05
Individualized Attention			
92	Aide with one child	-.28	.05
124	One child with aide/Math	-.29	.05
143	One child with teacher/Reading	-.20	
164	Personalized instruction in reading	-.29	.05
258	Aide with one child, academic activities/Longitudinal	-.31	.05
Adults with Two Children			
93	Aide with two children	-.43	.001
105	Adult with two children	-.43	.001
110	Two children with any adult	-.31	.05
125	Two children with aide/Math	-.37	.01
133	Two children with any adults	-.37	.01
144	Two children with teacher/Reading	-.28	.05
148	Two children with aide/Reading	-.33	.01
156	Two children with any adults/Reading	-.32	.05
Adults with Small Group			
201	Small group with any adults/Science	-.28	.05
222	Small group of children with any adults/Arts and Crafts	-.41	.01
Adults with Large Group			
107	Adult with large group	.37	.01
112	Large group of children with any adult	.30	.05
123	Large group with teacher/Math	.41	.01
135	Large group with any adults/Math	.46	.001

Table 111 (Continued)

IAR--FAILURE SCALE
(58 Third Grade Classrooms)

Variables No.	Variables Name	r	p<
Adults with Large Group (Continued)			
146	Large group with teacher/Reading	.27	.05
158	Large group with any adults/Reading	.30	.05
223	Large group of children with any adults/Arts and Crafts	.28	.05
Independent Children			
115	Two children independent	-.35	.01
116	Small group of children independent	-.54	.001
138	Small group of children independent/Math	-.54	.001
142	All children independent/Math	-.46	.001
159	One child independent/Reading	-.27	.05
161	Small group independent/Reading	-.48	.001
162	Large group of children independent/Reading	.33	.01
260	Children independent, academic activities/Longitudinal	-.35	.01
INTERACTIONS			
Child Questioning			
346a	Child commands, requests, and direct questions, nonacademic	-.41	.01
348a	Child open-ended questions, nonacademic	-.28	.05
350a	Child questions to adults	-.36	.01
450a	All child open-ended questions	-.30	.05
Adult Questioning			
352a	Adult commands, requests, and direct questions to individual children, nonacademic	-.27	.05
355a	Adult open-ended questions to children, nonacademic	-.39	.01
452a	Adult open-ended questions to children	-.32	.05
485c	Adult commands, requests, and direct questions to individual children, academic	.32	.01
582c	Adult academic commands, requests, and direct questions to children	.32	.05

Table 111 (Concluded)

IAR--FAILURE SCALE
(58 Third Grade Classrooms)

Variables			
No.	Name	r	p<
Child Responsiveness			
359a	Child responses, nonacademic	-.28	.05
368a	Child responses to adult open-ended questions	-.26	.05
369a	Child extended response, nonacademic	-.44	.001
493c	Individual child responds to adult academic command, request, or direct question	.26	.05
Adult Responsiveness			
365a	Adult responses to child requests or questions, nonacademic	-.38	.01
366a	Adult responds to child questions with open-ended question	-.33	.01
Instruction			
373a	Adult instruction, nonacademic	-.29	.05
Conversational Statements			
343a	Child to adult, all verbal except response	-.41	.01
388a	Child task-related comments to adults	-.32	.05
456a	All child task-related comments	-.36	.01
476c	Verbal interactions among children	-.41	.01
517c	Child task-related comments to children	-.46	.001
587c	All child task-related comments	-.45	.001
Child Behavior			
514c	Two children working together, using concrete objects	-.31	.05
515c	Small group working together, using concrete objects	-.31	.05
546c	Child waiting	.29	.05
598c	Child cooperation	-.42	.01
Communication Focus			
439a	Adult communication or attention focus, two children	-.26	.05
441a	Adult communication or attention focus, large group	.30	.05
471a	Adults attentive to large group	.37	.01
Miscellaneous			
444a	Adult movement	.28	.05

did not accept responsibility for their own success, but did accept responsibility for their failures. These children seem to be saying: "If I do well, it is because of the teacher; but if I do poorly, it is because of my own failings."

There were 62 significant negative correlations between accepting responsibility for failure and an instructional variable. Children who did not accept responsibility for their own failure were from classrooms which allowed a child to select his own seating and groups and provided a wide variety of materials and activities (Var. 24, 26, 44, 62, 63, 82, 83). Children from classrooms that allowed children to be independent and provided personalized attention and instruction were more likely to view the cause of their failure as something outside of themselves (see Table 111).

In classrooms where children took verbal initiative, asked questions, engaged in task-related conversation, or responded to adults' open-ended questions, children were more likely to view their failures as someone else's fault (e.g., "Someone bothered me," or "The book is too hard"). The variables which in part described University of Oregon and University of Kansas were positively correlated with accepting responsibility for failure. These two models and Non-Follow Through had higher residual gain scores than all other models (see Table 110). If children are to take responsibility for their own failure as measured by the IAR, it would seem advisable to use some of the instructional processes of the University of Kansas and University of Oregon. In these structured models, the expectations of children are very clear and, we hypothesize if a child fails he is aware that he did not respond to the task properly. Excepting EDC, children in the classrooms of the more open models took less responsibility for their failure. Far West, University of Arizona, and Bank Street adjusted scores were relatively lower than the means for all classrooms.

c. Summary

Findings from this study seem to indicate that classrooms that allow more independence have children who accept responsibility for their success. However, classrooms that allow more child involvement in selecting their groups, that allow child independence in activities, that provide individualized instruction, and that have a wide variety of activities and materials, do not as often have children who accept responsibility for their own failure.

On the other hand, children who are in classrooms that are more teacher-directed--and who experience education more often in large groups--are more likely to attribute their success to the teacher or to easy work. The failure of children in the more structured, teacher-directed classrooms is accepted by the child as his own failure.

Interestingly, the Non-Follow Through classrooms had positive gain scores on both the success and failure scores (see Table 110).

In fact, children in Non-Follow Through classrooms took more responsibility for their failure than children in any of the sponsors' classrooms. Perhaps this is explained by the fact that within the Non-Follow Through sample, there was a wide range of classroom structures. It may be recalled from Chapter VI that in the third grade sample, there were 16 classrooms that were classified as University of Oregon classrooms on the PEI and CCL variables and whose children, according to the previous findings, would accept responsibility for failure. EDC had the highest gain score for all sponsors on the Success scale and ten of the Non-Follow Through classrooms were classified as EDC; thus, in these classrooms the children would be more likely to take responsibility for their success. It is of note that EDC was the only sponsor to show positive gain on both scales. While all raw scores were similar for all of the sponsors, children in EDC classrooms entered school with lower baseline WRAT scores so that the adjustment of raw scores for entering ability was in EDC's favor. Nevertheless, upon adjustment of entering baseline scores, correlations indicated that children in EDC classrooms were more accepting than children in other classrooms of responsibility for both their own failure and success.

7. Relationship Between Scores on the MAT Math and Reading Subtests and Instructional Process Variables

It is of general interest to educators to understand how instructional processes affect a child's ability to show gains on standardized reading and math achievement tests. The MAT was given in Spring 1973. 108 first grades and 58 third grades were included in the sample. See Table 101 for the classroom and site breakdown by sponsor. From the data, correlations were computed between 340 instructional variables and classroom mean scores on reading and math tests for each grade (first adjusting for the baseline WRAT scores).

a. Math Correlations

This section presents the significant correlations between instructional variables and total math test scores for the first grade and three subscores on the math test for the third grade. Of the 340 correlations that were computed, approximately 17 significant correlations ($p < .05$) could have occurred by chance. Since there are so many variables and no way of identifying which may have occurred by chance, variables that correlated at both grade levels and those that correlated across all subscores can be interpreted with more confidence.

Two variables that represent the extent of opportunity to engage in math activities (Var. 17 and 66) were positively related to math scores in both the first and the third grades (see Table 112). In some cases, the lengths of time children spend in school varied by as much as 2 hours. When the school day is longer, children may have more opportunities to engage in math. The correlation of the average rate of occurrence of math and high test scores was strong in all of the

Table 112

PARTIAL CORRELATIONS OF MAT MATH SCORES WITH INSTRUCTIONAL VARIABLES FIRST AND THIRD GRADES (Follow Through and Non-Follow Through)

Variables		First Grade (N=108*) Total Math		Third Grade (N=58) Math Computation		Math Concepts		Math Problem Solving		Total Math	
No.	Name	r	p<	r	p<	r	p<	r	p<	r	p<
MATERIALS											
25	Games, toys, play equipment present	-.15		-.46	.001	-.38	.01	-.32	.05	-.42	.01
26	Games, toys, play equipment used	-.04		-.36	.01	-.36	.01	-.26		-.35	.01
28	Instructional materials used	.21	.05	-.05		-.03		-.02		-.04	
37	Audio visual equipment present	.04		-.45	.001	-.37	.01	-.35	.01	-.42	.01
38	Audio visual equipment used	-.28	.01	-.39	.01	-.18		-.24		-.30	.05
44	Total number different resource categories coded "present" over 3 days	-.04		-.41	.01	-.36	.01	-.33	.01	-.39	.01
45	Total number different resource categories coded "used today" over 3 days	-.03		-.30	.05	-.18		-.14	.31	-.23	
237	Audio visual equipment/Academic activities	-.30	.01	-.22		-.19		-.25	.06	-.23	
238	Exploratory materials/Academic activities	-.04		-.30	.05	-.23		-.14	.30	-.25	
239	Math or science equipment/Academic activities	-.03		-.20		-.29	.05	-.26		-.26	.05
240	Texts, workbooks/Academic activities	.09		.38	.01	.18		.17		.27	.05
241	Puzzles, games/Academic activities	-.15		-.30	.05	-.22		-.24		-.27	.05
ACTIVITIES											
24	Child selection of seating and work groups	-.09		-.32	.05	-.31	.05	-.30	.05	-.33	.01
62	Group time	-.21	.05	-.43	.001	-.35	.01	-.25		-.38	.01
63	Story, music, dancing	-.03		-.52	.001	-.46	.001	-.37	.01	-.48	.001
64	Arts, crafts	-.23	.05	-.26		-.15		-.11		-.20	
66	Numbers, math, arithmetic	.29	.01	.59	.001	.42	.01	.43	.01	.52	.001
67	Reading, alphabet, language development	.18		.40	.01	.26		.19		.31	.05
68	Social studies, geography	.15		.13		.28	.05	.18		.21	
69	Science, natural world	-.06		-.27	.05	-.21		-.18		-.24	
71	Blocks, trucks	-.18		-.22		-.33	.01	-.29	.05	-.29	.05
73	Active play	-.26	.01	-.29	.05	-.19		-.18		-.24	
76	Social interaction	.08		.18		.25		.33	.05	.26	.05
77	Unoccupied child	-.12		.45	.001	.37	.01	.42	.01	.44	.001
80	Classroom management	-.33	.001	-.10		-.09		.04		-.06	
82	Wide variety of activities, concurrent	-.07		-.14		-.33	.01	-.28	.05	-.26	
83	Wide variety of activities, over one day	-.13		-.44	.001	-.42	.01	-.40	.01	-.45	.001
84	Approximate number of children in the classroom in any activity	.29	.01	.29	.05	.28	.05	.17		.27	.05
244	Group time/Longitudinal	-.20	.05	-.32	.05	-.28	.05			-.28	.05
245	Story, music, dancing/Longitudinal	-.05		-.45	.001	-.43	.001	-.34	.01	-.44	.001
246	Arts, crafts/Longitudinal	-.28	.01	-.34	.01	-.27	.05	-.25		-.31	.05
247	Guessing games, table games, puzzles/Longitudinal	-.12		-.26		-.22		-.25		-.26	.05
248	Numbers, math, arithmetic/Longitudinal	.31	.01	.24		-.02		.01		.09	
249	Reading, alphabet, language development/Longitudinal	.09		.33	.01	.10		.09		.20	
251	Science, natural world/Longitudinal	-.04		-.37	.01	-.38	.01	-.28	.05	-.37	.01
253	Blocks, trucks/Longitudinal	-.12		-.19		-.29	.05	-.27	.05	-.26	.05
255	Active play/Longitudinal	-.27	.01	-.23		-.23		-.25		-.25	
256	Practical skills acquisition/Longitudinal	-.16		-.30	.05	-.19		-.23		-.26	

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[*] Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

Table 112 (Continued)

PARTIAL CORRELATIONS OF MAT MATH SCORES WITH INSTRUCTIONAL VARIABLES
FIRST AND THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade (N=108*) Total Math		Third Grade (N=58) Math Computation		Math Concepts		Math Problem Solving		Total Math	
No.	Name	r	p<	r	p<	r	p<	r	p<	r	p<
TIME SPENT AND ACADEMIC INTERACTION											
17	Total class duration	.25	.01	.40	.01	.39	.01	.40	.01	.42	.01
140	Approximate number children involved in Math--all days observed	.35	.001	.60	.001	.46	.001	.40	.01	.53	.001
163	Approximate number children involved in Reading--all days observed	.32	.001	.50	.001	.36	.01	.28	.05	.41	.01
186	Approximate number children involved in Social Studies--all days observed	.15		.11		.27	.05	.15		.18	
242	Percent CCLs in which an academic activity is occurring	.21	.05	.59	.001	.47	.001	.42	.01	.53	.001
435a	Total academic verbal interactions	.41	.001	.50	.001	.31	.05	.35	.01	.42	.01
566c	Total academic verbal interactions	.42	.001	.50	.001	.30	.05	.34	.01	.42	.01
GROUPINGS											
Adults in the Classroom											
15	Child/teacher and aide ratio (number children over teachers and aides)	.09		.15		.30	.05	.25		.24	
16	Child/adult ratio (number children over teachers, aides, and volunteers)	.02		.17		.31	.05	.23		.25	
108	Overall occurrences of adults	.28	.01	.07		-.04		-.02		.01	
262	Average number of adults in the classroom/Longitudinal	.23	.05	-.03		-.20		-.19		-.14	
Adults Without Children											
231	Volunteer involved/Classroom management	.06		.24		.19		.27	.05	.25	
Individualized Attention											
86	Teacher with one child	-.29	.01	-.14		-.12		-.09		-.13	
104	Adult with one child	-.21	.05	-.14		-.12		-.08		-.12	
109	One child with any adult	-.20	.05	-.15		-.16		-.08		-.14	
143	One child with teacher/Reading	-.26	.01	-.27	.05	-.17		-.13		-.21	
155	One child with any adults/Reading	-.19	.05	-.25		-.18		-.12		-.20	
164	Personalized instruction in Reading	-.22	.05	-.34	.01	-.27	.05	-.18		-.29	.05
257	Teacher with one child, academic activities/Longitudinal	-.28	.01	-.18		-.13		-.11		-.15	
Adults with Two Children											
87	Teacher with two children	-.26	.01	-.32	.05	-.38	.01	-.32	.05	-.36	.01
105	Adult with two children	-.19		-.29	.05	-.32	.05	-.23		-.30	.05
110	Two children with any adult	-.16		-.24		-.26	.05	-.14		-.23	
121	Two children with teacher/Math	-.14		-.23		-.27	.05	-.26		-.27	.05
133	Two children with any adults/Math	-.15		-.25		-.33	.01	-.23		-.29	.05
144	Two children with teacher/Reading	-.23	.05	-.40	.01	-.33	.01	-.28	.05	-.36	.01
148	Two children with aide/Reading	-.24	.01	-.27	.05	-.24		-.10		-.22	
156	Two children with any adults/Reading	-.16		-.38	.01	-.33	.01	-.22		-.33	.01
Adults with Small Group											
88	Teacher with small group	.16		-.19		-.30	.05	-.24		-.25	
94	Aide with small group	-.00		-.17		-.27	.05	-.29	.05	-.25	
106	Adult with small group	.09		-.17		-.29	.05	-.27	.05	-.26	

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*Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

Table 112 (Continued)

PARTIAL CORRELATIONS OF MAT MATH SCORES WITH INSTRUCTIONAL VARIABLES
FIRST AND THIRD GRADES
(Follow Through and Non-Follow Through)

Variables No.	Variables Name	First Grade (N=108*) Total Math r	First Grade (N=108*) Total Math p<	Third Grade (N=58) Math Computation r	Third Grade (N=58) Math Computation p<	Third Grade (N=58) Math Concepts r	Third Grade (N=58) Math Concepts p<	Third Grade (N=58) Math Problem Solving r	Third Grade (N=58) Math Problem Solving p<	Third Grade (N=58) Total Math r	Third Grade (N=58) Total Math p<
	Adults with Small Group (Continued)										
111	Small group of children with any adult	.14		-.14		-.26	.05	-.23		-.22	
122	Small group with teacher/Math	-.12		-.41	.01	-.34	.01	-.24		-.36	.01
134	Small group with any adults/Math	-.10		-.22		-.30	.05	-.28	.05	-.28	.05
145	Small group with teacher/Reading	.01		-.25		-.35	.01	-.28	.05	-.31	.05
157	Small group with any adults/Reading	.14		-.18		-.31	.05	-.28	.05	-.27	.05
222	Small group of children with any adults/ Arts and crafts	.00		-.23		-.31	.05	-.21		-.27	.05
	Adults with Large Group										
89	Teacher with large group	.07		.39	.01	.47	.001	.38	.01	.44	.001
107	Adult with large group	.06		.33	.01	.44	.001	.38	.01	.40	.01
112	Large group of children with any adult	.10		.32	.05	.42	.01	.32	.05	.37	.01
123	Large group with teacher/Math	.10		.39	.01	.52	.001	.41	.01	.47	.001
135	Large group with any adults/Math	.21	.05	.46	.001	.54	.001	.46	.001	.52	.001
146	Large group with teacher/Reading	.06		.34	.01	.43	.001	.33	.0[illegible]	.39	.01
158	Large group with any adults/Reading	.09		.40	.01	.44	.001	.32	.05	.41	.01
223	Large group of children with any adults/ Arts and crafts										
	Independent Children										
115	Two children independent	-.22	.05	-.36	.01	-.33	.01	-.23		-.33	.01
116	Small group of children independent	-.36	.001	-.28	.05	-.33	.01	-.23		-.30	.05
118	All children independent	-.31	.01	-.20		-.16		-.08		-.16	
136	One child independent/Math	-.05		-.34	.01	-.35	.01	-.21		-.32	.05
137	Two children independent/Math	-.11		-.43	.001	-.40	.01	-.31	.05	-.41	.01
138	Small group of children indenpendent/ Math	-.14		-.37	.01	-.46	.001	-.38	.01	-.43	.001
142	All children independent/Math	-.10		-.39	.01	-.39	.01	-.29	.05	-.38	.01
159	One child independent/Reading	-.13		-.32	.05	-.31	.05	-.21		-.30	.05
160	Two children independent/Reading	-.19	.05	-.39	.01	-.35	.01	-.32	.05	-.38	.01
161	Small group of children independent/ Reading	-.26	.01	-.23		-.20		-.11		-.20	
165	All children independent/Reading	-.23	.05	-.24		-.14		-.04		-.16	
205	Small group of children independent/ Science	-.11		-.29	.05	-.29	.05	-.21		-.28	.05
	Miscellaneous										
113	Overall occurrence of children with any adult	.31	.01	.20		.16		.08		.16	
	INTERACTIONS										
	Child Questioning										
346a	Child commands, requests, and direct questions, nonacademic	-.20	.05	-.51	.001	-.40	.01	-.43	.001	-.48	.001
350a	Child questions to adults	-.13		-.32	.05	-.32	.05	-.29	.05	-.33	.01
450a	All child open-ended questions	-.09		-.19		-.28	.05	-.20		-.24	
477c	Child commands, requests, and direct questions, nonacademic	-.35	.001	-.38	.01	-.26	.05	-.26		-.33	.01

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*Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

Table 112 (Continued)

PARTIAL CORRELATIONS OF MAT MATH SCORES WITH INSTRUCTIONAL VARIABLES
FIRST AND THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade (N=108*) Total Math		Third Grade (N=58)							
				Math Computation		Math Concepts		Math Problem Solving		Total Math	
No.	Name	r	p<	r	p<	r	p<	r	p<	r	p<
Adult Questioning											
351a	Adult commands, requests, and direct questions to groups of children, nonacademic	-.16		-.28	.05	-.17		-.22		-.24	
352a	Adult commands, requests, and direct questions to individual children, nonacademic	-.31	.01	-.47	.001	-.31	.05	-.38	.01	-.42	.01
353a	Adult commands, requests, and direct questions to groups of children, academic	.10		.53	.001	.52	.001	.45	.001	.54	.001
354a	Adult commands, requests, and direct questions to individual children, academic	.23	.05	.30	.05	.09		.08		.18	
355a	Adult open-ended questions to children, nonacademic	-.15		-.42	.01	-.36	.01	-.38	.01	-.42	.01
357a	All adult questions to children	.11		.32	.05	.24		.12		.25	
451a	Adult academic commands, requests, and direct questions to children	.25	.01	.51	.001	.36	.01	.31	.05	.43	.001
452a	Adult open-ended questions to children	-.03		-.35	.01	-.30	.05	-.29	.05	-.34	.01
485c	Adult commands, requests, and direct questions to individual children, academic	.29	.01	.36	.01	.24		.24		.30	.05
488c	All adult questions to children	.21	.05	.36	.01	.43	.001	.31	.05	.39	.01
582c	Adult academic commands, requests, and direct questions to children	.32	.01	.57	.001	.51	.001	.44	.001	.55	.001
Child Responsiveness											
358c	All child responses	.26	.01	.44	.001	.28	.05	.20		.34	.01
359a	Child responses, nonacademic	-.26	.01	-.47	.001	-.30	.05	-.37	.01	-.41	.01
360a	Child responses, academic	.39	.001	.52	.001	.33	.01	.30	.05	.42	.01
362a	One child responds to adult academic commands, requests, or direct questions	.28	.01	.30	.05	.09		.09		.18	
363a	Child group responds to adult academic commands, requests, or direct questions	.14		.54	.001	.45	.001	.47	.01	.52	.001
368a	Child responses to adult open-ended questions	-.03		-.32	.05	-.26	.05	-.24		-.30	.05
369a	Child extended response, nonacademic	.33	.001	-.36	.01	-.19		-.24		-.29	.05
370a	Child extended response, academic	.29	.01	.35	.01	.26	.05	.33	.01	.34	.01
454a	Child's extended response to question	.35	.001	.19		.18		.22		.21	
490c	Child responses, nonacademic	-.28	.01	-.29	.05	-.16		-.17		-.23	
491c	Child responses, academic	.34	.001	.42	.01	.29	.05	.30	.05	.37	.01
493c	One child responds to adult academic commands, requests, or direct questions	.25	.01	.18		.04		.03		.10	
544c	Child not responding to adults	.08		.34	.01	.45	.001	.40	.01	.42	.01
585c	Child's extended response to questions	.26	.01	-.20		-.12		-.04		-.13	
Adult Responsiveness											
365a	Adult responses to child requests or questions, nonacademic	-.29	.01	-.50	.001	-.38	.01	-.38	.01	-.45	.001
366a	Adult responds to child question with open-ended question	.03		-.28	.05	-.13		-.14		-.20	

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Table 112 (Continued)

PARTIAL CORRELATIONS OF MAT MATH SCORES WITH INSTRUCTIONAL VARIABLES FIRST AND THIRD GRADES (Follow Through and Non-Follow Through)

Variables		First Grade (N=108*) Total Math		Third Grade (N=58)							
				Math Computa-tion		Math Concepts		Math Problem Solving		Total Math	
No.	Name	r	p<	r	p<	r	p<	r	p<	r	p<
Adult Responsiveness (Continued)											
496c	Adult responses to child requests or questions, nonacademic	-.20	.05	-.30	.05	-.32	.05	-.21		-.30	.05
545c	Adult not responding to child	.12		.22		.35	.01	.34	.01	.32	.05
Adult Feedback											
394a	All adult acknowledgment to children	.20	.05	-.03		-.08		-.10		-.07	
395a	Adult acknowledgment to children, academic	.29	.01	.14		.03		.03		.08	
397a	Adult acknowledgment, other task-related	-.13		-.42	.001	-.27	.05	-.33	.01	-.37	.01
398a	All adult praise to children	.39	.001	.25		.10		.18		.19	
399a	Adult reinforcement with token, academic	.38	.001	.15		.02		.01		.07	
400a	Adult reinforcement with token, behavior	.37	.001	.12		.08		.00		.08	
401a	Adult reinforcement with token, other task-related	-.30	.01	.11		.02		-.03		.04	
402a	Adult praise, academic	.37	.001	.36	.01	.17		.31	.05	.30	.05
403a	Adult praise, behavior	.36	.001	.16		.11		.04		.11	
404a	Adult praise, other task-related	-.06		-.30	.05	-.21		-.34	.01	-.30	.05
405a	All adult corrective feedback to children	.31	.01	.16		.12		.03		.12	
406a	Adult positive corrective feedback, academic	.44	.001	.34	.01	.12		.20	.25		
407a	Adult negative corrective feedback, academic	.15		.34	.01	.38	.01	.18		.32	.05
408a	Adult positive corrective feedback, behavior	-.04		-.27	.05	-.19		-.25		-.26	
412a	Adult feedback to child response to adult academic commands, requests, or questions	.44	.001	.20		.09		.08		.14	
432a	Adult punishment of children	.13		.29	.05	.36	.01	.24		.32	.05
449a	Adult netural corrective feedback, academic	.23	.05	.24		.24		.30	.05	.28	.05
457a	All adult positive corrective feedback	.38	.001	.14		.06		.02		.08	
469a	All adult reinforcement with tokens	.41	.001	.15		.02		.01		.07	
543c	Adult feedback to child response to adult academic commands, requests, or questions	.30	.01	.17		.07		.00		.09	
580c	Adult neutral corrective feedback, academic	.26	.01	.07		.02		.04		.05	
588c	All adult positive corrective feedback	.31	.01	.06		.16		.23		.15	
600c	All adult reinforcement with tokens	.35	.001	.11		.02		-.05		.03	
Instruction											
372a	Child presenting information to a group	.03		.13		.20		.26	.05	.21	
373a	Adult instruction, nonacademic	-.07		-.39	.01	-.26	.05	-.26		-.33	.01
375a	Adult instructs an individual child	-.12		-.26		-.35	.01	-.34	.01	-.33	.01
380a	Child self-instruction, academic, with objects	-.03		.33	.01	.32	.05	.22		.31	.05
455a	All adult instruction	-.09		-.28	.05	-.16		-.17		-.22	
508c	Child self-instruction	.10		.30	.05	.09		.10		.19	

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Table 112 (Continued)

PARTIAL CORRELATIONS OF MAT MATH SCORES WITH INSTRUCTIONAL VARIABLES
FIRST AND THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade (N=108*) Total Math		Third Grade (N=58)							
				Math Computation		Math Concepts		Math Problem Solving		Total Math	
No.	Name	r	p<	r	p<	r	p<	r	p<	r	p<
Instruction (Continued)											
509c	Child self-instruction, academic	.26	.01	.37	.01	.14		.19		.26	
510c	Child self-instruction, objects	-.34	.001	-.16		-.10		-.16		-.15	
511c	Child self-instruction, academic, with objects	-.34	.001	-.02		.04		-.06		-.01	
586c	All adult instruction	.05		.12		.29		.26	.05	.23	
599c	Child self-instruction, nonacademic	-.26	.01	-.26		-.16		-.27	.05	-.24	
Child Attending											
464a	Child attentive	-.03		-.29	.05	-.15		-.11		-.20	
547c	Children attentive to adults, non-academic	-.17		-.39	.02	-.21		-.26		-.31	.05
595c	Child attentive	-.07		-.36	.01	-.21		-.25		-.30	.05
Conversational Statements											
234	Among children/Social interaction	-.05		.27	.05	.35	.01	.41	.01	.36	.01
343a	Child to adult, all verbal except response	-.24	.01	-.45	.001	-.33	.01	-.36	.01	-.41	.01
344a	Individual child verbal interactions with adult	.05		-.18		-.27	.05	-.33	.01	-.27	.05
387a	Child general comments to adults	-.33	.001	-.29	.05	-.22		-.32	.01	-.30	.05
388a	Child task-related comments to adults	-.16		-.39	.01	-.20		-.17		-.28	.05
389a	Adult general comments to children	-.32	.001	-.13		-.06		-.18		-.13	
390a	Adult task-related comments to children	.19		-.41	.01	-.25		-.20		-.32	.05
456a	All child task-related comments	.03		-.37	.01	-.19		-.21		-.28	.05
474c	Child to adult, all verbal except response	-.23	.05	-.26		-.14		-.20		-.21	
476c	Verbal interactions among children	-.18		-.49	.001	-.36	.01	-.34	.01	-.43	.001
516c	Social interaction among children	-.28	.01	-.24		-.13		-.18		-.20	
517c	Child task-related comments to children	.03		-.35	.01	-.30	.05	-.26		-.32	.01
518c	Child general comments to adults	-.26	.01	-.35	.01	-.28	.05	-.38	.01	-.36	.01
520c	Adult general comments to children	-.20	.05	-.15		-.11		-.20		-.16	
587c	All child task-related comments	-.04		-.32	.05	-.26		-.21		-.28	.05
Affect											
461a	All child negative affect	-.06		.14		.09		.26	.05	.17	
463a	All negative behavior	.03		.27	.05	.29	.05	.18		.27	.05
594c	All negative behavior	-.11	.14		.12			.29	.05	.19	
Child Behavior											
467a	Child cooperation	.20	.05	-.15		-.01		-.00		-.06	
513c	Child task persistence	.09		.32	.05	.12		.12		.21	
574c	Child movement	-.12		-.30	.05	-.18		-.15		-.23	
598c	Child cooperation	-.03		-.42	.01	-.33	.01	-.26	.05	-.37	.01
Communication Focus											
418a	Adults attentive to children non-academic	-.22	.05	-.23		-.06		-.11		-.15	
419a	Adults attentive to children, academic	.27	.01	.32	.05	.15		.18		.24	

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*Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

Table 112 (Concluded)

PARTIAL CORRELATIONS OF MAT MATH SCORES WITH INSTRUCTIONAL VARIABLES
FIRST AND THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade (N=108*) Total Math		Third Grade (N=58)							
				Math Computa- tion		Math Concepts		Math Problem Solving		Total Math	
No.	Name	r	p<	r	p<	r	p<	r	p<	r	p<
Communication Focus (Continued)											
438a	Adult communication or attention focus, one child	.19		-.11		-.30	.05	-.27	.05	-.23	
441a	Adult communication or attention focus, large group	.10		.24		.35	.01	.29	.05	.32	.05
471a	Adults attentive to large group	-.07		.33		.39	.01	.31	.05	.36	
Miscellaneous											
444a	Adult movement	.04		.41	.01	.39	.01	.43	.001	.44	.001

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*Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

third grade subtests, as well as with the test totals for first and third grades. A variable that describes the number of children involved in math (Var. 140) on all of the observed days also had high positive correlations with all of the math test scores in both grade levels. "Total academic verbal interactions," which is a variable representing discussions of reading or math (Var. 435a and 566c) only, was positively related to math scores in both grades and these correlations occurred in both the adult-focused data and the child-focused data. Thus, opportunity and exposure to math seemeds to have an important effect upon test performance.

Since the average amount of time spent in arithmetic was highly correlated with achievement in math, scattergrams were generated to investigate whether classrooms that had a lower mean score on the baseline WRAT performed differently in relationship to this process variable and math achievement than those classrooms that had higher classroom mean scores on the WRAT. The classroom mean scores were rank ordered and divided into three equal groups of high, medium, and low. In first grade there were 36 in each group and in third grade there were 19 in the high and low groups and 20 in the medium group.

In both first and third grade, the classrooms where children entered with lower baseline scores achieved more when the amount of time spent in math increased than did the children in classrooms with higher baseline scores (see Table 113). This is particularly evident in third grade (see Figures 38, 39, and 40) where the correlation ranges from .65 for classrooms with low baseline WRAT mean scores to .26 for classrooms with high WRAT mean scores. This finding suggests that children who entered school with less ability need more time spent in developing basic skills.

In third grade classrooms where children were taught math in large groups by adults (Var. 135), children performed better on the math tests than children who were taught in other grouping arrangements. Because of the instructions given to classroom observers to record all groups of over eight children as "large groups," the interpretation of any variable which includes large groups is confused. It could be that three adults were instructing separate groups of ten children each, or it could be that one adult was instructing one group of 30 children, with two aides performing classroom management tasks. Since Var. 107 (Adults with large group), which includes teacher, aide, and volunteers and Var. 123 (Teacher with large group) both had positive correlations with the test scores in the third grade, it could be that several large groups of nine or more children were functioning at the same time in the classroom. All other grouping arrangements (Var. 122, 133, 134, 136, 137, and 138) showed either negative correlations with math scores or no significant relationship with test scores.

The occurrence of reading and the number of children involved in reading were related to math scores. This relationship suggests that programs that stress one of the basic skills also stress the other basic skills.

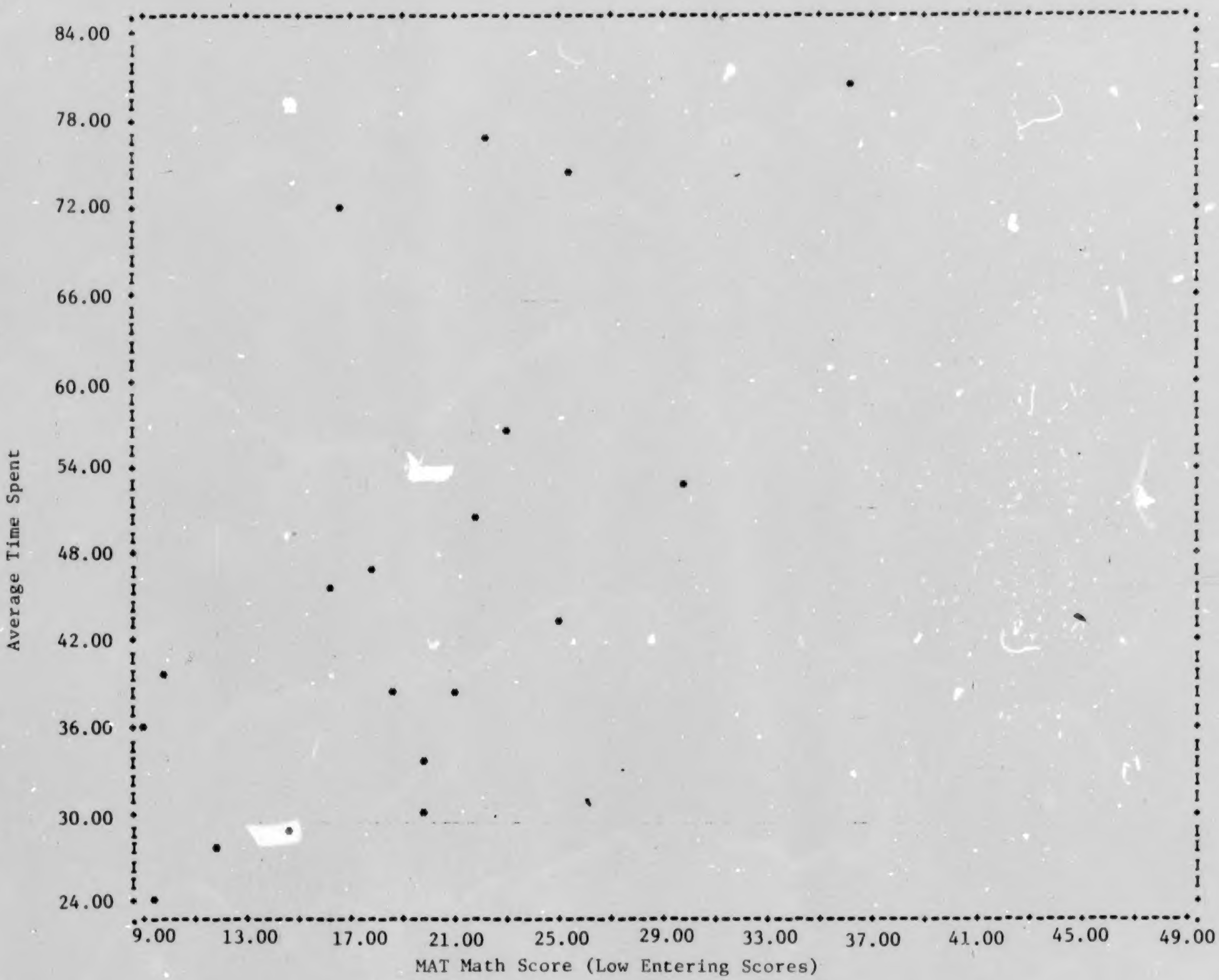

FIGURE 38 TIME SPENT IN NUMBERS, MATH, AND ARITHMETIC (VAR. 58) PLOTTED AGAINST MAT MATH OURCOMES, THIRD GRADE CORRELATION .65, STANDARD ERROR 13.6, N=19

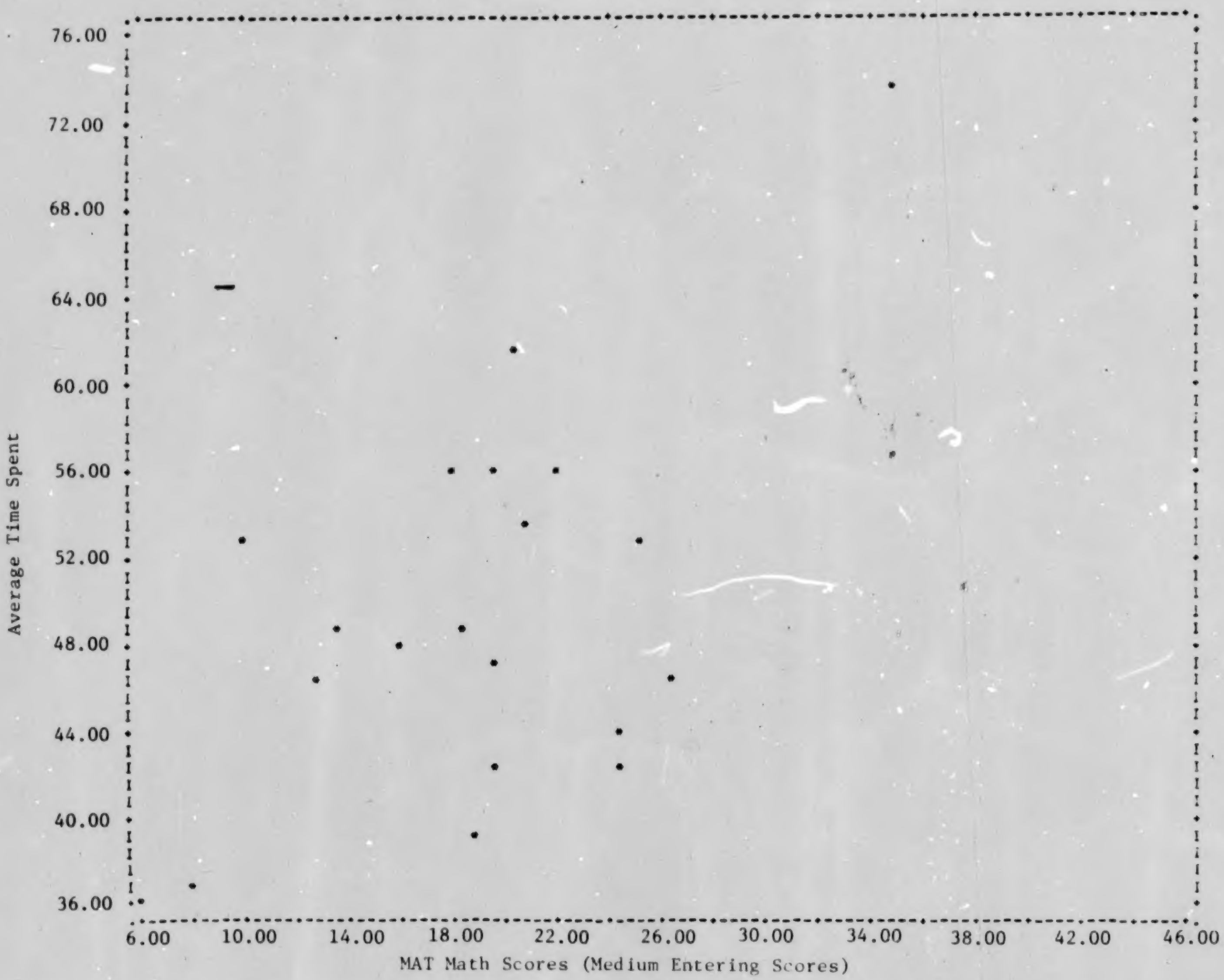

FIGURE 39 TIME SPENT IN NUMBERS, MATH, AND ARITHMETIC (VAR. 58) PLOTTED AGAINST MAT MATH OUTCOMES, THIRD GRADE CORRELATION .58, STANDARD ERROR 7.55, N=20

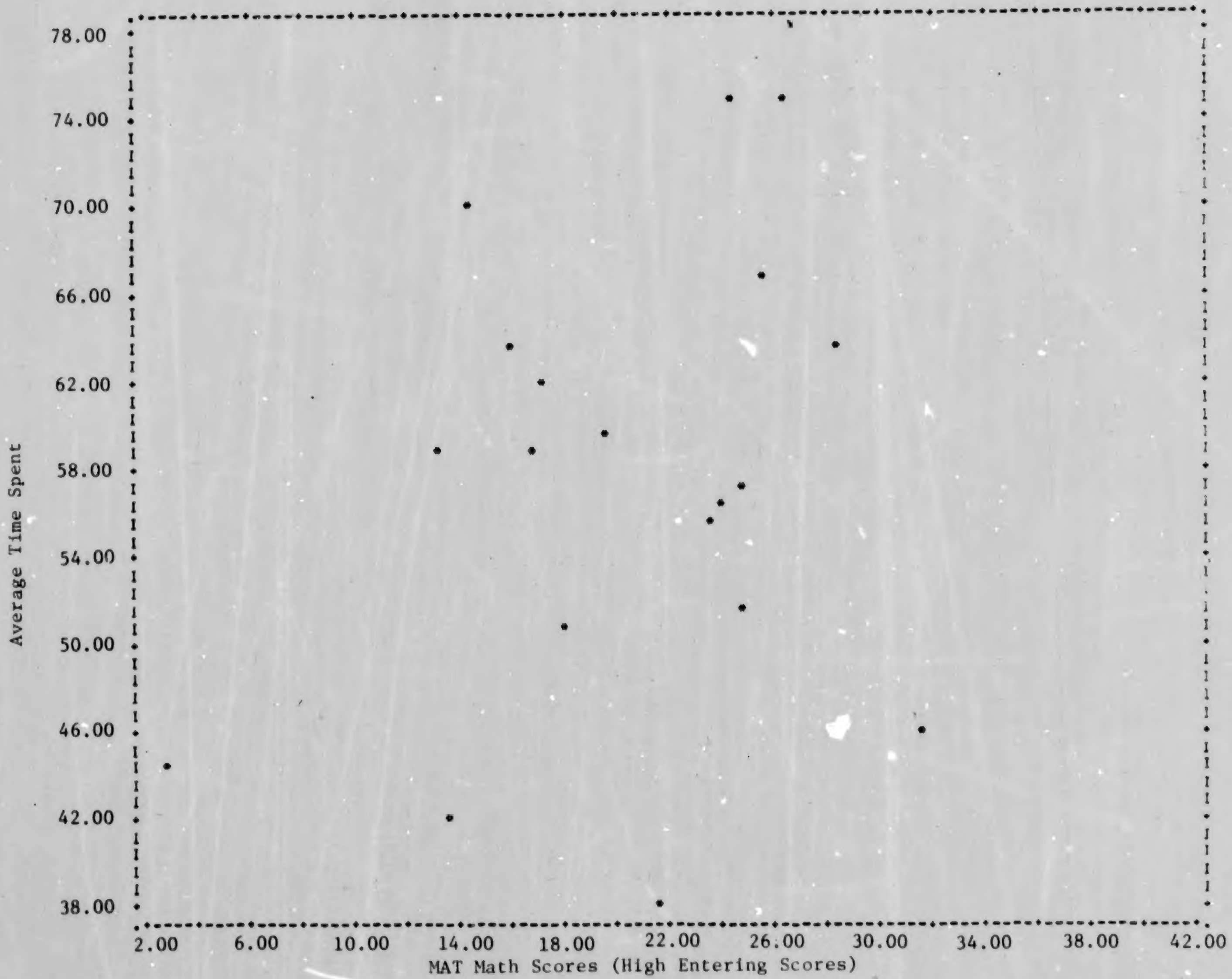

FIGURE 40 TIME SPENT IN NUMBERS, MATH, AND ARITHMETIC (VAR. 58) PLOTTED AGAINST MAT MATH OUTCOMES, THIRD GRADE CORRELATION .24, STANDARD ERROR 10.45, N=19

Table 113

AVERAGE OCCURRENCE OF CHILDREN ENGAGED IN MATH ACTIVITIES PER OBSERVATION* (VAR. 1)

	Low	Med	High
First Grade			
Number of Classrooms	36	36	36
Correlations	.51	.05	.40
Third Grade			
Number of Classrooms	19	20	19
Correlations	.65	.58	.25

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*Computed over three days and includes approximately 60 observations.

Many question-response-feedback variables had significant correlations with math scores in both grades. In this type of interaction, an adult asks the children a direct question that requires a specific response. The adult then gives immediate feedback to the response so that the child knows if he is right or wrong.

In the first grade, there was a positive correlation with adult questions to individual children in academic subjects (Var. 354a). This trend reversed in the third grade and the significant relationship was between adults questioning groups of children (Var. 353a) rather than an individual child. Children offering academic responses and extended responses (Var. 360a and 370a) were significantly correlated in both grades.

A change in the effect of adult feedback upon math test scores was evident in the correlations for the two grades. For academic activities in the first grade, acknowledgment, praise, tokens, positive corrective and neutral corrective feedback (Var. 395a, 399a, 402a, and 449a) were significantly related to math scores. In the third grade, praise, neutral corrective and negative corrective feedback (Var. 402a, 407a, and 449a) had significant relationship with the scores.

The positive correlation of test scores with negative corrective feedback in academic subjects was surprising. This feedback is usually in the form of demeaning statements, threats, withholding privileges, or punishment. It is difficult to understand how this would motivate the child to perform better in math. Most sponsors encouraged teachers to be supportive and to redirect incorrect responses in academic situations.

It is interesting to note that the use of tokens as reinforcement (Var. 399a, 400a, 469a, and 600c) was correlated with test scores in only the first grade. The University of Kansas model, the only model to use tokens, has modified its program in the third grade and recommends verbal reinforcement rather than tokens. This difference in procedure between first and third grade is reflected in the results.

A variable describing an adult moving around the classroom (Var. 444a) was positively correlated with all subscores on the third grade math tests. This movement most likely occurred as the teacher moved around the classroom assisting children in checking the work in the workbooks or textbooks and providing feedback. Textbooks and workbooks and child self-instruction (Var. 240 and 509c) were also positively correlated with math computation.

In the third grade, two strange positive correlations from the child-focused data were found between children or adults not responding (Var. 544c, 545c) and the math scores. This is likely to be an anomaly caused by our instructions to the observer. The observer was instructed to record an adult's question to the group, and if the child being observed did not respond either in chorus or individually, he would be recorded as not responding. On the other hand, if the observed focus child was requesting assistance and had his hand up, the teacher was coded as not responding until she gave that particular child some attention. Since this correlation occurred only in the child-focused data, we conclude that it is an anomaly, reflecting the way the data were collected.

In the first grade, there were 49 significant positive correlations and 35 negative correlations with components of the more-structured model more often positively related to the test scores. Variables relating to the more open classrooms, such as "Wide variety of activities" and child independence, were negatively correlated.

In general, the third grade subscores correlated very similarly: math computations had 114 significant correlations, math concepts 104, problem solving 77, and total math 108. Out of these, there were 52 variables on which they had all significant correlations.

Math computation had more significant correlations with all of the stimulus-response-feedback variables than did the other two subtests. Primarily, this subtest correlates positively with instructional variables which represent the structured model and negatively with variables representing the flexible models.

Only math concepts had significant positive relationships with a higher ratio of adults to children (Var. 15, 16). It also was the only subtest to have a positive relationship with the occurrence of social studies (Var. 68, 186). Some social studies projects require building models, and the like, which may aid in developing math concepts as measured by the MAT subtest, Math Concepts.

Problem solving was somewhat different in its correlations from the other subtests. Problem solving was not negatively affected by games or toys used or group time (Var. 26 and 62) as were the other subscores. Nor did the problem-solving subscore have as many negative correlations with variables associated with independence, small groups, personalized instruction, audiovisual equipment used, or exploratory materials as did the other two subscores. Also, fewer negative correlations were reported between problem solving and open-ended divergent-type questions or task-related comments, as they were for the two other subscores. The only positive correlation with children presenting information to a group (Var. 372a) was with the problem-solving subtest. Nevertheless problem solving was highly correlated with the other subtests and probably is measuring very similar dimensions of math ability.

Overall for third grade, there were a total of 403 correlations $p > .05$ when correlations of all tests were combined. Of these, 165 were positive correlations and 238 were negative correlations. Thus, we have learned as much regarding what instructional processes may not enhance achievement on these tests as we have learned about the processes that may be beneficial to student performance. Data presented on Table 114 indicate that in the first grade the University of Kansas classrooms had the highest raw score mean as well as the highest adjusted score relative to all other classrooms. Surprisingly EDC, a sponsor which does not emphasize developing basic skills in the first grade, had the second highest adjusted score. This score was even higher than the Non-Follow Through score.

In third grade, University of Oregon had a raw score and adjusted score in math which were significantly different from all other sponsors and Non-Follow Through (see Table 114). Compared to all classrooms, University of Kansas and Non-Follow Through were the only other groups to have positive adjusted math scores.

Excepting EDC, in the first grade, the sponsors who advocate the use of the process variables which are positively related to math scores are the sponsors which had higher raw scores as well as higher adjusted math scores. EDC's mean scores in first grade on the use of process variables that were positively related to the math scores were lower in relationship to the scores of University of Oregon, University of of Kansas, and Non-Follow Through on the process variables. In the case of EDC, variables other than those we have assessed in this report must account for EDC's residual gain score in math.

b. Reading Correlations

Correlations were computed for reading test scores and instructional variables (first adjusting for baseline WRAT scores). Some

Table 114

SPONSOR AND NON-FOLLOW THROUGH MEANS AND STANDARD DEVIATIONS FOR MAT TOTAL MATH SCORES

	Var. 438/Fall 1971 WRAT		Var. 443/ MAT Math Raw Score		Relative Difference in adjusted MAT Math Scores Among Sponsors and NFT	
Sponsor and Number	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
			FIRST GRADE			
Far West (N=12)	32.65	2.78	31.31	5.73	-2.56	6.01
University of Arizona (N=14)	30.92	5.09	31.08	7.26	-1.55	6.14
Bank Street (N=11)	26.86	5.72	29.54	5.22	-.22	4.50
University of Oregon (N=5)	29.32	7.50	31.14	7.25	-.37	3.10
University of Kansas (N=17)	28.11	4.68	36.76	7.50	6.10	7.36
High/Scope (N=13)	26.60	7.10	24.24	7.03	-5.34	5.66
EDC (N=12)	27.02	5.40	30.99	4.00	1.11	1.67
NFT (N=24)	32.67	9.05	34.27	9.99	.38	6.28
			THIRD GRADE			
Far West (N=14)	40.78	3.31	49.62	9.71	-6.08	8.65
University of Arizona (N=2)	28.20	.28	33.72	7.24	-12.54	7.45
Bank Street (N=7)	32.42	6.78	47.42	12.49	-2.00	8.42
University of Oregon (N=4)	33.50	6.37	71.12	9.32	20.89	8.13
University of Kansas (N=12)	35.16	5.82	52.63	10.67	1.15	8.18
High/Scope (N=0)	*	*	*	*	*	*
EDC (N=6)	26.38	6.95	38.53	11.56	-6.36	7.20
NFT (N=13)	38.25	8.71	58.79	11.96	5.00	14.43

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*Insufficient classrooms were both tested and observed in the third grade for High/Scope for their model to be included in the analysis.

105 first grade and 58 third grade classrooms were included in the analysis (see Table 101 for the classroom and site breakdown by sponsor). Since 340 instructional variables were used, approximately 17 significant correlations $p < .05$ for each test could be expected to occur by chance. Those variables that showed significant correlation with both reading tests in a single grade level, or were significant in both grade levels, can be interpreted with greater confidence.

In the first grade, the "word analysis" test scores were significantly correlated with 113 of the instructional variables and 118 of the variables correlated with the score on the "total reading" task. (Word analysis is not a subset of the total reading score.) Out of these, 88 variables were significantly correlated with scores from both tests.

The MAT reading test administered to the third grade measured "language" and "total reading." Of the instructional variables, 91 were significantly correlated with the "language" test scores, and 63 variables were significantly correlated with "total reading." Of these, 46 variables were common to the two tests.

The amount of time spent in school (Var. 17) had a positive significant relationship with all scores in both grades (see Table 115). There was a difference among sites of 2 hours in the total class duration. Not only did the amount of time in school affect scores, but also the amount of time spent in reading. Two variables in the first grade were positively correlated with opportunity or exposure to reading (Var. 67, 163). The number of children involved in math or social studies (subjects requiring reading skills in the third grade) was positively related to reading scores in the third grade. Another variable, which described interactions taking place between adults and students involved with reading or math, was related to high reading scores in both grades (Var. 435a, 566c). These significant positive relationships occurred in both the child-focused and the adult-focused data. The results for the preceding variables combined suggest that more opportunities and exposures to reading will enhance reading scores.

The results also indicate differences in what appear to be optimal grouping arrangements for the first and the third grade. First grade scores were higher when adults worked with small groups (Var. 88, 149, 157). Third grade scores were higher when the adults worked with large groups (Var. 89, 107, 146, 158). Small groups have been defined as a group of 3 to 8 children. Thus, any group of 9 or more children was classified as a large group. The sponsors often have fewer aides assigned at third grade than first grade; thus, with fewer adults, the group size would naturally be larger and would probably be coded as a large group. Also Non-Follow Through classrooms are most likely to be taught in large groups since they do not often have classroom aides available. Two variables relating to the number of children per adult (Var. 15, 16) were positively related to third grade reading and language scores. Apparently when there were fewer adults per child, the scores were higher. Since large groups dominate in the third grade, these correlations are to be expected.

Table 115

PARTIAL CORRELATIONS OF MAT READING SCORES WITH INSTRUCTIONAL VARIABLES
FIRST AND THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade (N=108*)				Third Grade (N=58)			
		Word Analysis		Total Reading		Language		Total Reading	
No.	Name	r	p<	r	p<	r	p<	r	p<
MATERIALS									
25	Games, toys, play equipment present	-.23	.05	-.32	.001	-.29	.05	-.29	.05
26	Games, toys, play equipment used	-.08		-.20	.05	-.31	.05	-.32	.05
28	Instructional materials used	.21	.05	.16		-.11		.11	
38	Audio visual equipment used	-.15		-.28	.01	-.10		-.06	
44	Total number different resource categories coded "present" over three days	-.08		-.19	.05	-.23		-.18	
237	Audio visual equipment/Academic Activities	-.25	.01	-.29	.01	-.15		-.12	
238	Exploratory materials/Academic Activities	-.09		-.15		-.26	.05	-.15	
239	Math or science equipment/Academic Activities	-.04		-.07		-.31	.05	-.36	.01
240	Texts, workbooks/Academic Activities	.16		.24	.01	.13		.11	
241	Puzzles, games/Academic Activities	-.04		-.09		-.34	.01	-.17	
ACTIVITIES									
22	Teacher assigns children to groups	-.20	.05						
24	Child selection of seating and work groups	-.20		-.26	.01	-.30	.05	-.23	
62	Group time	-.30		-.22	.05	-.23		-.20	
63	Story, music, dancing	-.16	.01	-.13		-.39	.01	-.20	
64	Arts, crafts	-.29	.01	-.26	.01	-.03		-.03	
65	Guessing games, table games, puzzles	-.12		-.10		-.27	.05	-.17	
66	Numbers, math, arithmetic	.26	.01	.19	.05	.21		.33	.01
67	Reading, alphabet, language development	.38	.001	.40	.001	.23		.08	
68	Social studies, geography	.20	.05	.29	.01	.28	.05	.17	
69	Science, natural world	-.18		-.24	.01	-.10		-.06	
71	Blocks, trucks	-.23	.05	-.24	.05	-.30	.05	-.32	.05
73	Active play	-.21	.05	-.23	.05	-.10		-.01	
76	Social interaction	.01		-.08		.35	.01	.19	
77	Unoccupied child	-.18		-.11		.30	.05	.26	
78	Discipline	-.19		-.20	.05	-.00		-.16	
80	Classroom management	-.22	.05	-.23	.05	-.17		-.07	
82	Wide variety of activities, concurrent	-.16		-.18		-.40	.01	-.33	.05
83	Wide variety of activities, over one day	-.30	.01	-.30	.01	-.36	.01	-.20	
84	Approximate number of children in the classroom in any activity	.24	.01	.23	.05	.27	.05	.15	
244	Group time/Longitudinal	-.28	.01	-.21	.05			-.12	
245	Story, music, dancing/Longitudinal	-.15		-.15		-.40	.01	-.22	
246	Arts, crafts/Longitudinal	-.32	.001	-.35	.001	-.27	.05	-.18	
250	Social studies, geography/Longitudinal	.15		.23	.05			.14	
252	Sewing, cooking, pounding/Longitudinal	-.11		-.08		-.33	.01	-.18	
253	Blocks, trucks/Longitudinal	-.18		-.18		.27	.05	-.34	.01
255	Active play/Longitudinal	-.20	.05	-.15		-.13		-.07	
565c	Dramatic play, pretending	-.20	.05	-.20	.05	-.25		-.23	
TIME SPENT AND ACADEMIC INTERACTION									
17	Total class duration	.29	.01	.30	.01	.35	.01	.29	.05
140	Approximate number of children involved in Math, all days observed	.29	.01	.22	.05	.28	.05	.31	.05
163	Approximate number of children involved in Reading, all days observed	.30	.001	.40	.001	.32	.05	.18	
186	Approximate number of children involved in Social Studies, all days observed	.20	.05	.27	.01	.26		.10	
207	Approximate number of children involved in Science--all days observed	-.11		-.20	.05	-.06		-.04	

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*Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

Table 115 (Continued)

PARTIAL CORRELATIONS OF MAT READING SCORES WITH INSTRUCTIONAL VARIABLES FIRST AND THIRD GRADES

(Follow Through and Non-Follow Through)

Variables		First Grade (N=108*)				Third Grade (N=58)			
		Word Analysis		Total Reading		Language		Total Reading	
No.	Name	r	p<	r	p<	r	p<	r	p<
TIME SPENT AND ACADEMIC INTERACTION (Continued)									
228 Arts	Approximate number of children involved in Arts and Crafts, all days observed	-.22	.05	-.20	.05	.07		.02	
242	Percent CCLs in which an academic activity is occurring	.35	.001	.26	.01	.42	.01	.25	
435a	Total academic verbal interactions	.42	.001	.33	.001	.29	.05	.29	.05
566c	Total academic verbal interactions	.55	.001	.50	.001	-.23		.34	.01
GROUPINGS									
Adults in the Classroom									
15	Child/teacher and aide ratio (Number of children over teachers and aides)	.02		.11		.47	.001	.50	.001
16	Child/adult ratio (Number of children over teachers, aides, and volunteers)	-.03		.04		.46		.44	.001
96	Overall aide occurrences	.18		.11		-.20		-.28	.05
262	Average number of adults in the classroom/ Longitudinal	.14		.11		.31	.05	-.29	.05
Adults Without Children									
85	Teacher without children	-.24	.01	-.26	.01	-.14		.04	
229	Teacher involved/Classroom Management	-.15		-.25	.01	-.41		.02	
231	Volunteer involved/Classroom Management	.08		.00		.20		.28	.05
Individualized Attention									
86	Teacher with one child	-.31	.01	-.34	.001	-.12		-.12	
92	Aide with one child	-.06		-.22	.05	-.08		-.15	
104	Adult with one child	-.23	.05	-.30	.01	-.15		-.14	
109	One child with any adult	-.26	.01	-.33	.001	-.16		-.14	
124	One child with aide/Math	-.16		-.22	.05	-.16		-.23	
141	Personalized instruction in Math	-.20	.05	-.25	.01	-.20		-.22	
143	One child with teacher/Reading	-.31	.01	-.31	.01	-.23		-.20	
155	One child with any adults/Reading	-.27	.01	-.32	.001	-.24		-.21	
164	Personalized instruction in reading	-.29	.01	-.34	.001	-.29	.05	-.24	
257	Teacher with one child, academic activities/Longitudinal	-.26	.01	-.28	.01	-.13		-.18	
261	Any adult with one child, any activity/ Longitudinal	-.24	.05	-.30	.01	-.08		-.06	
Adults with Two Children									
87	Teacher with two children	-.30	.01	-.29	.01	-.36	.01	-.37	.01
93	Aide with two children	-.17		-.19	.05	-.14		-.10	
105	Adult with two children	-.18		-.17		-.27		-.27	.05
110	Two children with any adult	-.18		-.21	.05	-.21		-.16	
121	Two children with teacher/Math	-.31	.001	-.25	.01	-.26		-.21	
133	Two children with any adults/Math	-.22	.05	-.23	.05	-.21		-.23	
144	Two children with teacher/Reading	-.29	.01	-.32	.001	-.30	.05	-.29	.05
156	Two children with any adults/Reading	-.19	.05	-.22	.05	-.28	.05	-.23	

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* Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

Table 115 (Continued)

PARTIAL CORRELATIONS OF MAT READING SCORES WITH INSTRUCTIONAL VARIABLES
FIRST AND THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade (N=108*)				Third Grade (N=58)			
		Word Analysis		Math Reading		Language		Total Reading	
No.	Name	r	p<	r	p<	r	p<	r	p<
Adults with Small Group									
88	Teacher with small group	.22	.05	.23	.05	-.35	.01	-.39	.01
94	Aide with small group	.12		.09		-.34	.01	-.39	.01
106	Adult with small group	.19	.05	.19	.05	-.36	.01	-.42	.01
111	Small group of children with any adult	.19		.15		-.33	.01	-.41	.01
122	Small group with teacher/Math	-.10		-.05		-.31	.05	-.22	
126	Small group with aide/Math	-.02		-.04		-.24		-.31	.05
134	Small group with any adults/Math	-.08		-.09		-.36	.01	-.40	.01
145	Small group with teacher/Reading	.06		.03		-.35	.01	-.41	.01
149	Small group with aide/Reading	.26	.01	.22	.05	-.32	.05	-.39	.01
157	Small group with any adults/Reading	.21	.05	.17		-.36	.01	-.42	.01
201	Small group with any adults/Science	-.03		-.12		-.29	.05	-.28	.05
222	Small group of children with any adults/ Arts and Crafts	.07		.05		-.27	.05	-.21	
Adults with Large Group									
89	Teacher with large group	.13		.15		.54	.001	.49	.001
107	Adult with large group	.06		.11		.53	.001	.46	.001
112	Large group of children with any adult	.04		.09		.48	.001	.43	.001
123	Large group with teacher/Math	.18		.11		.57	.001	.50	.001
127	Large group with aide/Math	.26	.01	.29	.01	.02		.04	
135	Large group with any adults/Math	.31	.01	.27	.01	.55	.001	.51	.001
146	Large group with teacher/Reading	.05		.10		.50	.001	.44	.001
158	Large group with any adults/Reading	.01		.06		.46	.001	.40	.01
181	Large group with any adults/Social Studies	.20	.05	.31	.01	.21		.24	
223	Large group of children with any adults/ Arts and Crafts	.13		.17		.23		.26	.05
Independent Children									
114	One child independent	-.13		-.20	.05	-.25		-.14	
115	Two children independent	-.20	.05	-.28	.01	-.32	.05	-.24	
116	Small group of children independent	-.31	.01	-.30	.01	-.33	.01	-.17	
118	All children independent	-.30	.01	-.29	.01	-.16		-.00	
136	One child independent/Math	-.12		-.14		-.32	.05	-.19	
137	Two children independent/Math	-.23	.05	-.18		-.38	.01	-.24	
138	Small group of children independent/Math	-.22	.05	-.18		-.41	.01	-.26	
142	All children independent/Math	-.25	.01	-.20	.05	-.34	.01	-.21	
159	One child independent/Reading	-.17		-.22	.05	-.34	.01	-.21	
160	Two children independent/Reading	-.19		-.26	.01	-.32	.01	-.20	
161	Small group of children independent/ Reading	.20	.05	-.19	.05	-.23		-.10	
162	Large group of children independent/ Reading	.02		.07		.26	.05	.28	.05
165	All children independent/Reading	-.22	.05	-.21	.05	-.10		.05	
185	Large group of children independnet/Social Studies	-.25	.01	-.14		.01		.10	
203	One child independent/Science	-.31	.01	-.17		-.25		-.16	
205	Small group of children independent/ Science	-.16		-.21	.05	-.21		-.14	
Miscellaneous									
113	Overall occurrence of children with any adult	.30	.01	.29	.01	.16		.00	

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*Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

Table 115 (Continued)

PARTIAL CORRELATIONS OF MAT READING SCORES WITH INSTRUCTIONAL VARIABLES
FIRST AND THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade (N=108*)				Third Grade (N=58)			
		Word Analysis		Total Reading		Language		Total Reading	
No.	Name	r	p<	r	p<	r	p<	r	p<
INTERACTIONS									
Child Questioning									
346a	Child commands, requests, and direct questions, nonacademic	-.23	.05	-.27	.01	-.33	.01	-.31	.05
349a	Child open-ended questions, academic	-.22	.05	-.20	.05	-.26		-.24	
350a	Child questions to adults	-.11		-.23	.05	-.24		-.16	
450a	All child open-ended questions	-.25	.01	-.17		-.29	.05	-.23	
477c	Child commands, requests, and direct questions, nonacademic	-.33	.001	-.37	.001	-.33	.01	-.27	.05
479c	Child open-ended questions, nonacademic	-.28	~~.01~~	-.15		-.07		-.09	
581c	All child open-ended questions	-.29	.01	-.17		-.07		-.06	
Adult Questioning									
352a	Adult commands, requests, and direct questions to individual children, nonacademic	-.25	.01	-.20	.05	-.37	.01	-.29	.05
353a	Adult commands, requests, and direct questions to groups of children, academic	.29	.01	.20	.05	.51	.001	.32	.05
355a	Adult open-ended questions to children, nonacademic	-.20	.05	-.13		-.36	.01	-.24	
357a	All adult questions to children	.25	.01	.19		.15		.06	
451a	Adult academic commands, requests, and direct questions to children	.35	.001	.26	.01	.30	.05	.18	
452a	Adult open-ended questions to children	-.11		-.08		-.31	.05	-.13	
485c	Adult commands, requests, and direct questions to individual children, academic	.29	.01	.22	.05	.01		.10	
488c	All adult questions to children	.37	.001	.28	.01	.31	.05	.24	
582c	Adult academic commands, requests, and direct questions to children	.44	.001	.35	.001	.35	.01	.30	.05
Child Responsiveness									
358a	All child responses	.28	.01	.28	.01	.17		.05	
359a	Child responses, nonacademic	-.19	.05	-.12		-.30	.05	-.28	.05
360a	Child responses, academic	.38	.001	.33	.01	.25		.15	
362a	One child responds to adult academic commands, requests, or direct questions	.23	.05	.21	.05	.02		-.01	
363a	Child group responses to adult academic commands, requests, or direct questions	.32	.001	.22	.05	.45	.001	.34	.01
368a	Child responses to adult open-ended questions	-.11		-.08		-.27	.05	-.08	
370a	Child extended response, academic	.17		.21	.05	.08		.27	.05
490c	Child responses, nonacademic	-.22	.05	-.25	.01	-.14		-.05	
491c	Child responses, academic	.41	.001	.35	.001	.17		.20	
493c	One child responds to adult academic commands, requests, or direct questions	.24	.05	.17		-.17		-.06	
544c	Child not responding to adults	.13		.11		.48	.001	.24	

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*Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

Table 115 (Continued)

PARTIAL CORRELATIONS OF MAT READING SCORES WITH INSTRUCTIONAL VARIABLES
FIRST AND THIRD GRADES
(Follow Through and Non-Follow Through)

		First Grade (N=108*)				Third Grade (N=58)			
	Variables	Word Analysis		Total Reading		Language		Total Reading	
No.	Name	r	p<	r	p<	r	p<	r	p<
	Adult Responsiveness								
365a	Adult responses to child requests or questions, nonacademic	-.26	.01	-.33	.001	-.31		-.17	
496c	Adult responses to child requests or questions, nonacademic	-.27	.01	-.28	.01	-.36	.01	-.26	
545c	Adult not responding to child	-.01		-.09		.36	.01	.28	.05
	Adult Feedback								
394a	All adult acknowledgment to children	.28	.01	.18		-.05		-.16	
395a	Adult acknowledgment to children, academic	.34	.001	.23	.05	.04		-.05	
398a	All adult praise to children	.36	.001	.31	.01	.04		-.01	
399a	Adult reinforcement with token, academic	.29	.01	.28	.01	-.12		.06	
400a	Adult reinforcement with token, behavior	.26		.31	.01	.01		.08	
401a	Adult reinforcement with token, other task-related	.27	.01	.40	.001	-.11		.04	
402a	Adult praise, academic	.33	.001	.28	.01	.13		.10	
403a	Adult praise, behavior	.24	.01	.27	.01	.04		.10	
404a	Adult praise, other task-related	.12		.08		-.26		-.33	.01
406a	Adult positive corrective feedback, academic	.20	.05	.21	.05	.08		.08	
407a	Adult negative corrective feedback, academic	.16		.05		.30	.05	.15	
410a	Adult positive corrective feedback, other task-related	-.20	.05	-.07		.04		-.21	
412a	Adult feedback to child responses to adult academic commands, requests, and direct questions	.46	.001	.39	.001	.07		-.05	
432a	Adult punishment of children	.02		-.08		.39	.01	.23	
448a	Adult neutral corrective feedback, behavior	-.23	.05	-.16		.19		.05	
449a	Adult neutral corrective feedback, academic	.15		.23	.05	.10		.07	
469a	All adult reinforcement with tokens	.31	.001	.31	.001	-.11		.06	
543c	Adult feedback to child responses to adult academic commands, requests, and direct questions	.39	.001	.28	.01	-.08		-.04	
578c	Adult neutral corrective feedback, task-related	-.34	.001	-.19		.02		-.22	
579c	Adult neutral corrective feedback, behavior	-.28	.01	-.21	.05	.11		.02	
600c	All adult reinforcement with tokens	.29	.01	.28	.01	-.14		.05	
	Instruction								
374a	Adult instruction, academic	.16		.11		.09		.29	.05
375a	Adult instructs an individual child	-.07		-.03		-.29	.01	-.24	
380a	Child self-instruction, academic, with objects	-.09		-.02		.29	.05	-.01	
455a	All adult instruction	.05		.21	.05	-.14		-.00	
468a	Child self-instruction, nonacademic	-.10		-.10		-.21		-.28	.05
506c	Adult instructs an individual child	.03		.09		-.29	.05	-.22	
508c	Child self-instruction	.29	.01	.29	.01	.03		.17	
509c	Child self-instruction, academic	.42	.001	.40	.001	.08		.24	
510c	Child self-instruction, objects	-.19	.05	-.22	.05	-.04		-.08	

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*Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

Table 115 (Concluded)

PARTIAL CORRELATIONS OF MAT READING SCORES WITH INSTRUCTIONAL VARIABLES
FIRST AND THIRD GRADES
(Follow Through and Non-Follow Through)

Variables		First Grade (N=108*)				Third Grade (N=58)			
		Word Analysis		Total Reading		Language		Total Reading	
No.	Name	r	p<	r	p<	r	p<	r	p<
Instruction (Continued)									
586c	All adult instruction	.06		.12		.23		.28	.05
599c	Child self-instruction, nonacademic	-.21	.05	-.18		-.14		-.22	
Child Attending									
577c	Child attentive to machine	-.22	.05	-.25	.01	-.10		-.28	.05
Conversational Statements									
232	Among adults/Social Interaction	-.23	.05	-.06		.09		.29	
234	Among children/Social Interaction	-.13		-.21	.05	.32	.01	.22	
343a	Child to adult, all verbal except response	-.20	.05	-.24	.01	-.29	.05	-.21	
344a	Individual child verbal interactions with adult	-.02		.01		-.34	.01	-.36	.01
387a	Child general comments to adults	-.29	.01	-.26	.01	-.27	.05	-.30	.05
474c	Child to adult, all verbal except response	-.18		-.18		-.14		-.26	.05
476c	Verbal interactions among children	-.22	.05	-.28	.01	-.26		-.25	
516c	Social interaction among children	-.30		-.33	.001	.01		-.22	
517c	Child task-related comments to children	-.02		-.06		-.27	.05	-.19	
518c	Child general comments to adults	-.26	.01	-.25	.01	-.27	.05	-.37	.01
522c	Child acknowledgment	.12		.01		-.21		-.28	.05
523c	Child praise	-.25	.01	-.17		-.07		-.09	
Affect									
591c	All child positive affect	-.20	.05	-.18		.04		.05	
592c	All child negative affect	-.14		-.22	.05	.22		.06	
594c	All negative behavior	-.11		-.18		.27		.27	.05
Child Behavior									
75	Observing (independent children only)	-.05		-.21	.05	-.03		-.01	
513c	Child task persistence	.28		.30	.01	.07		.19	
573c	All child nonverbal	.20	.05	.12		.14		.21	
574c	Child movement	-.12		-.24	.01	-.11		-.12	
598c	Child cooperation	-.03		-.12		-.26	.05	-.14	
Communication Focus									
419a	Adults attentive to children, academic	.27	.01	.21	.05	.23		.25	
438a	Adult communication or attention focus, one child	.06		.06		-.39	.01	-.35	.01
441a	Adult communication or attention focus, large group	.09		.11		.52	.001	.48	.001
471a	Adults attentive to large group	-.01		.02		.56	.001	.45	.001
Miscellaneous									
444a	Adult movement	.04		.03		.51	.001	.43	.001

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*Child focus variables, which are identified by the c appearing as part of the variable code number, pertain to 105 rather than 108 classrooms.

Instructional patterns differ somewhat for grades one and three. The variable "adults asking direct questions about the subject matter" was positively related to all reading scores for both levels, as was the group response to such questions (Var. 353a, 363a). However, feedback of many varieties seemed to enhance the scores in first grade. Acknowledgment, praise, tokens, and positive corrective feedback (Var. 395a, 399a, 402a, and 406a) showed significant positive correlations with test scores. Reinforcement used for academic activities in third grade was a little less clear. Reading scores had a negative relationship (-.33) with praise (Var. 404a) given in other task-related activities. This is similar to a finding of Brophe (1974). He found that praise was negatively related to achievement gain in a 2-year study of teacher effectiveness. These data indicate that children in the first grade need more feedback to perform well than do children in the third grade. Only language scores were positively related to two feedback variables (Var. 407a and 432). These data suggest that if children in classrooms were given negative corrective feedback or were punished, they received high scores on the language tests (Var. 407a, 432a). (The incidence of punishment was very low for all sponsors, and thus the correlations may have reflected anomalies in the data.) However, Harris (1968) in a study of 48 elementary school teachers also found a positive correlation between criticism or negative motivations and reading achievement. It may be that some groups of children perform better when these firm and even negative control and feedback systems are used.

First grade children who were more often observed to be instructing themselves in academic subjects also scored higher on tests. This correlation did not occur in the third grade.

The third grade had higher reading scores when the adults instructed them more often and moved around the room (Var. [illegible]44a, 586c). The adults in the classroom might have been moving around their group of nine or more children, instructing and asking questions about the subject matter.

As we have seen in both first and third grades, in classrooms where more time was devoted to academic subjects, and where the interactions were of an academic nature, the children's scores on MAT reading tests were higher. On the other hand, in classrooms where a large portion of children's interactions were social or nonacademic interactions, including general comments to adults (Var. 234, 352a, 387a, and 518c), the reading scores were lower.

When a wide variety of materials were available or when a wide variety of activities occurred over the day (Var. 25, 71, and 83), a negative correlation with reading scores was indicated for both grades. Perhaps the more frequent occurrences of nonacademic activities, such as arts and crafts, music, dance, active play or group time, which showed negative correlations, did not allow sufficient time to develop the necessary skills to score well on the reading test (Var. 63, 228, 244, 246).

Table 116

SPONSOR AND NON-FOLLOW THROUGH MEANS AND STANDARD DEVIATIONS FOR MAT READING SCORES

Sponsor and Number	Var. 438/Fall 1971 WRAT Mean	Var. 438/Fall 1971 WRAT Standard Deviation	Var. 442/ MAT Reading Raw Score Mean	Var. 442/ MAT Reading Raw Score Standard Deviation	Relative Difference in adjusted MAT Reading Scores Among Sponsors and NFT Mean	Relative Difference in adjusted MAT Reading Scores Among Sponsors and NFT Standard Deviation
FIRST GRADE						
Far West (N=12)	32.65	2.78	40.81	7.16	-5.30	7.30
University of Arizona (N=14)	30.92	5.09	41.99	8.95	-1.55	5.48
Bank Street (N=11)	26.86	5.72	36.29	7.18	-2.53	2.49
University of Oregon (N=5)	29.32	7.50	48.61	9.94	6.93	3.19
University of Kansas (N=17)	28.11	4.68	46.13	9.15	5.86	9.15
High/Scope (N=13)	26.60	7.10	36.00	8.55	-2.52	6.24
EDC (N=12)	27.02	5.40	34.42	6.60	-4.58	4.48
NFT (N=24)	32.67	9.05	48.34	14.02	2.77	7.73
THIRD GRADE						
Far West (N=14)	40.78	3.31	47.20	8.40	-1.78	6.87
University of Arizona (N=2)	28.20	.28	32.95	2.05	-3.83	1.78
Bank Street (N=7)	32.42	6.78	35.34	11.44	-5.53	5.50
University of Oregon (N=4)	33.50	6.37	46.63	11.70	4.71	6.04
University of Kansas (N=12)	35.16	5.82	42.21	9.99	-1.32	8.03
High/Scope (N=0)	*	*	*	*	*	*
EDC (N=6)	26.38	6.95	32.09	10.12	-2.93	7.03
NFT (N=13)	38.25	8.71	53.15	5.39	6.62	9.40

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*Insufficient classrooms were both tested and observed in the third grade for High/Scope for their model to be included in the analysis.

Classrooms where adults focused their attention upon one or two children (Var. 155, 156, and 483c), rather than the small or large group, had children who performed less well on the reading tests. Small groups seemed the best configuration in first grades while large groups (9 or more children) were better for third grades.

Both University of Kansas and University of Oregon who use many of the processes that were positively related to the reading scores had higher adjusted residual gain scores in reading than did other sponsors and Non-Follow Through (see Table 116). Their raw scores in first grade were also higher than those of other sponsors.

Of the sponsors in third grade, Far West and University of Oregon had the highest raw scores. University of Oregon, however, was the only sponsor to have a positive adjusted score. Far West, as previously noted, had an exceptionally high entering baseline score and thus rarely showed a positive adjusted score even if the raw score was high. Non-Follow Through in third grade reading showed both a higher raw score and adjusted score. This is the only instance where the pooled Non-Follow Through group obtained a test score higher than all Follow Through sponsors.

c. Summary

Children who performed well on tests of reading and math seemed to be in classrooms where more time was spent in developing academic skills. Several variables related to time spent on reading and math: duration of the school day, average time each child spent in reading or math or related subjects, and the frequency of academic verbal interactions. These variables were positively related to reading and math scores in both first and third grades. The findings are in agreement with Wiley (1973) who concluded that "the quantity of schooling is an important determinant of achievement." The reader is reminded that the time a child spends in reading or arithmetic activities is computed over the entire day and includes all of those informal occasions where a child may be reading to himself or to another child as well as the formal instruction where an adult is conducting a lesson. Thus, it is the average amount of time a child spends during the day in reading or math or related activities--not just formal drill.

8. Summary of the Findings from Partial Correlations of Instructional Processes and Outcomes

a. Intercorrelations of Outcome Variables

The outcome scores varied differentially in their correlation with process variables. For the most part the MAT, absence, the child behaviors, the Raven's, the Coopersmith, and the IAR appear to be measuring different aspects of child growth and development.

An intercorrelation of all outcome raw scores (see Table 117), indicates that at both grade levels the highest correlations are found among the MAT reading and math tests. This finding, of course, is to be expected and the reader is reminded that reading scores were positively correlated to the amount of time children spent in studying math. The two skills are closely related.

The WRAT was more predictive of reading scores in the first grade (.71) than other outcomes. The next highest correlations of the WRAT were with reading and the Raven's in the third grade (.66, .64). There was more relationship between high scores on the WRAT and a child's accepting responsibility for his success (.44) than for accepting responsibility for his failure (.24). This suggests that classrooms in which children enter school with more ability (as measured by the WRAT) are more likely to have children who take responsibility for their success: they are not as likely to have children who take responsibility for their failure.

The highest correlation of Absence Rate with other outcome measures was with independence (-.37) in the third grade. This indicates that in classrooms where children were more independent (engaged in more activities without adults) they were likely to be absent less frequently. The next highest correlation of absence rate was with the IAR Success scale (-.29). Classrooms where children took more responsibility for their own success tend to have lower absence rates. The correlation with the Raven's was also -.29. Twelve classroom process variables were shared by the Raven's and absence rate. These processes describe the more open and flexible classrooms.

In general, the correlations between child behaviors and other outcome scores were quite low, suggesting that different abilities were being measured. Among the child behaviors in first grade, the highest positive correlation was between child question asking and verbal initiative (.37). This relationship could be expected since child questioning is a subset of verbal initiative and both were measuring related behaviors. Although the two variables are related to each other, they did correlate differently with other tests and contributed different information. Verbal initiative was negatively related to math and reading scores in both first and third grade, whereas question asking was not so related. Independence and task persistence are variables which are related in definition, so that each variable requires the child to be involved in a task without an adult. They differ in that independence was recorded on the CCL and included single children or groups of children engaged in any activity without an adult; i.e., they could be discussing a subject or just working together. Task persistence was taken from the FMO and required that the child be instructing himself or working alone at a task over a period of five recorded frames. Any verbal interaction discontinued the task persistence code. The two variables are related in that a child who was task persistent would be recorded on the CCL as independent, but so would many other children who were working and talking together without adults. In spite of the interdependence of the two

Table 117

INTERCORRELATION OF OUTCOME SCORES
FIRST AND THIRD GRADES

	WRAT	MAT Reading	MAT Math	Absence	Independence	Verbal Initiative	Questions	Task Persistence	Self-Esteem	Cooperation
FIRST GRADE										
WRAT	1.00									
MAT Reading	.71	1.00								
MAT Math	.59	.77	1.00							
Absence	-.12	-.05	.02	1.00						
Independence	.04	-.18	-.23	-.17	1.00					
Verbal Initiative	.02	-.11	-.17	-.03	.07	1.00				
Questions	.03	.03	.06	-.06	-.05	.37	1.00			
Task Persistence	-.05	.17	.14	.09	-.13	-.28	-.15	1.00		
Self-Esteem	.05	-.01	-.11	-.00	.07	.09	-.26	-.00	1.00	
Cooperation	.00	-.05	.06	-.01	.29	.04	-.13	-.33	-.01	1.00

	WRAT	MAT Reading	MAT Language	Absence	Independence	Verbal Initiative	Task Persistence	Cooperation	MAT Math Computation	MAT Math Concepts	MAT Math Problem Solving	MAT Total Math	Raven's	Coopersmith	IAR-Success	IAR-Failure
THIRD GRADE																
WRAT	1.00															
MAT Reading	.66	1.00														
MAT Language	.36	.76	1.00													
Absence	-.27	-.15	.20	1.00												
Independence	.10	.06	-.11	-.37	1.00											
Verbal Initiative	.01	-.19	-.20	-.23	.25	1.00										
Task Persistence	.27	.31	.16	-.11	-.17	-.36	1.00									
Cooperation	.33	.12	-.12	-.21	.25	.25	-.25	1.00								
MAT Math Computation	.21	.57	.66	.20	-.17	-.25	.36	-.32	1.00							
MAT Math Concepts	.54	.80	.84	.05	-.08	-.11	.24	-.09	.80	1.00						
MAT Math Problem Solving	.45	.79	.81	.04	-.03	-.18	.22	-.07	.78	.88	1.00					
MAT Total Math	.42	.76	.82	.11	-.11	-.19	.30	-.18	.92	.95	.94	1.00				
Raven's	.64	.53	.25	.29	.38	.24	.04	.43	-.03	.27	.30	.19	1.00			
Coopersmith	.08	.10	.09	.09	.03	-.06	-.02	.06	.07	.11	.12	.11	.03	1.00		
IAR-Success	.44	.41	.23	-.29	.34	-.14	.10	.06	.09	.27	.32	.24	.44	.36	1.00	
IAR-Failure	.24	.45	.45	.08	-.16	-.24	.21	-.31	.39	.48	.47	.48	.00	.14	.34	1.00

variables, they correlated differently with test scores. In both grade levels, task persistence was positively related to MAT reading and math scores while independence was negatively related to those test scores.

The Raven's had its highest correlations with the WRAT and the MAT reading (.64 and .53). This is interesting for reading since in many instances the process variables that had significant positive correlations with the Raven's had significant negative correlations with the MAT reading. This counter-direction of significant correlations occurred 23 times. The child behaviors that correlated most highly with the Raven's were child independence and cooperation (.38 and .43). These same child behaviors had low correlations with the WRAT and with reading. The process variables which correlated positively with the Raven's were those associated with the more open and flexible models, while those which positively correlated with reading were associated with the more structured models.

The Coopersmith, which is a test of self-esteem, had only low correlations with all outcome tests, as it did with the process variables. The highest correlation was with the IAR Success scale (.36). There was a tendency for classrooms where children had higher scores on the self-esteem test to also take responsibility for their success.

The IAR Success scale was more closely related to the Raven's (.44), the WRAT (.44), and the MAT reading (.41) than other outcome scores. The IAR Success scale and the Raven's related similarly to 9 out of 18 process variables. It is more difficult to understand the correlation of the IAR Success scale and the MAT reading since they correlated differently on several process variables: e.g., total duration of day (MAT reading .29, IAR Success -.29), Child commands, requests, and asks direct questions in activities other than reading or math (MAT reading -.27; IAR Success .29). There was no instance where they were correlated in the same direction with the same process variables.

The IAR's Failure scale had its highest correlations with all of the MAT scores and the process variables correlated similarly for these test scores. In fact, the IAR Failure scale shared 46 out of its 85 significantly related process variables with MAT reading or math. The process variables positively related to the IAR Failure score were closely related to those process variables which described the structured models. Contrary to the IAR Success scale, there was no correlation between the IAR Failure scale and the Raven's.

Overall, excepting for the intercorrelations of the MAT, the correlations of outcome scores were low. Apparently different aspects of child growth and development were being measured.

b. Selected Process Variables Related to Outcomes

In order to investigate the effect of instructional process variables on the outcomes, two instructional process variables which correlated significantly with several child outcomes were analyzed across all outcomes: These are "all adult praise" and "one child with any adult." The variable "all adult praise" correlated both positively and negatively with outcomes in both first and third grades. Table 118 presents these findings.

Table 118

CORRELATIONS OF ALL ADULT PRAISE
WITH OUTCOME SCORES

	r	p<
First Grade: (N=108)		
Absence Rate	.14	.001
Independence	-.60	.001
MAT Math	.39	.01
MAT Reading	.31	
Third Grade: (N=58)		
Absence Rate	.10	.05
Independence	-.23	.05
Ravens	-.32	.05
Coopersmith	-.31	.05
IAR Success	-.09	
IAR Failure	.07	
MAT Math	.19	.10
MAT Reading	-.01	

In both first and third grades, praise was negatively related to independence. The definition of "independence" is a child or children involved in a task without adults (data were collected from only child-focused observations). This independent behavior did not flourish in classrooms where there was a high rate of adult praise (data were collected on adult-focused days). It is interesting that out of all the interaction variables in first grade, only praise was so negatively related (-.60) to independence. It may be that children who are praised a great deal are in structured situations that do not allow for the type of independent activity coded on the SRI instrument. We do not know whether these children would be more independent if given the opportunity.

In the first grade, "All adult praise" was positively related to reading and math scores, but the effect of praise upon academic achievement was much less evident in the third grade. This suggests that while first graders may need more positive feedback to perform well in reading or math, this type of feedback does not contribute to a great extent toward good performance in the third grade.

As in the findings for independence, the variable all adult praise showed a negative effect upon performance on the Raven's test and the Coopersmith Self-Esteem Inventory. Apparently, the more that adults in classrooms told third grade children that they were doing well, the less likely the children were to score high on perceptual problem-solving tasks, respond positively about themselves, or take responsibility for success or failure.

Since all of the correlations presented were partialed on the baseline WRAT, an exploratory analysis was conducted to see whether classrooms in which the children entered school with differing abilities, as measured by the WRAT, would show different results in process and outcome relationships. Classrooms in both the first and the third grades were divided into three groups (high, medium, and low) based on the classroom mean baseline WRAT score. Columns one, two, and three of Table 119 present these findings. Children in first grade classrooms with low or medium entering ability scores seemed to be more affected by praise from adults; children in classrooms where entering ability was high were relatively less affected.

Table 119

CLASSROOMS WITH LOW, MEDIUM, HIGH MEANS--PARTIAL CORRELATIONS OF "ALL ADULT PRAISE" WITH OUTCOME TEST SCORES

	WRAT Low		WRAT Medium		WRAT High	
Outcomes	r	p<	r	p<	r	p<
First Grade:	(N=36)		(N=36)		(N=36)	
Absence Rate	.25	.05	-.05		.07	
Independence	-.58	.001	-.73	.001	-.37	.01
MAT Math	.31	.05	.53	.001	.06	
MAT Reading	.39	.001	.43	.001	.02	
Third Grade:	(N=19)		(N=20)		(N=19)	
Absence Rate	.00		-.15		.15	
Independence	-.27		-.32		-.28	
Raven's	-.50	.01	-.53	.001	.26	
Coopersmith	-.42	.05	-.09		-.36	
IAR Success	-.07		-.04		-.03	
IAR Failure	.04		-.13		.23	
MAT Math	.21		-.18		.31	
MAT Reading	.04		-.31		.16	

In the third grade, all of the significant correlations were negative, and all of the correlations for the medium ability group were negative, including those for reading and math.

The reader is reminded that third grade math achievement and time spent were analyzed by ability level, and the findings suggest that children with lower ability were likely to achieve more if they spent more time in math activities.

Thus, we can hypothesize that low-ability first grade children will achieve more on the reading and math tests if they receive more praise, and low-ability children in the third grade will achieve more if they spend more time in math activities. A study examining more of the interaction between child abilities and treatment would be of great value in planning educational programs for children of differing abilities and differing age groups.

Another instructional variable that was examined across all outcomes was "One child with any adult." Table 120 presents these findings. Findings from this table indicate that when children had individualized attention in the first or third grade, they were absent less frequently and they were more often independent. First grade math and reading scores were adversely affected by individualized attention. This

Table 120

PARTIAL CORRELATIONS OF ONE CHILD WITH ANY ADULT AND ALL OUTCOME SCORES

	r	p<
First Grade Overall: (N=108)		
Absence Rate	-.35	.001
Independence	.44	.001
MAT Math	-.20	.05
MAT Reading	-.33	.001
Third Grade: (N=58)		
Absence Rate	-.30	.01
Independence	.39	.001
Ravens	.32	.05
Coopersmith	.04	
IAR Success	.05	
IAR Failure	-.18	.10
MAT Math	-.13	
MAT Reading	-.12	

reverses a previous finding (Stallings, 1973) which indicated that individualized attention was positively related to academic achievement. Third grade scores in reading and math were not significantly affected by individualized attention. However, children from classrooms where adults were observed to be with one child at a time received higher scores on the Raven's test.

The Absence Rate in first grade classrooms with low- and medium-ability groups was apparently affected more positively by having adults provide individual attention than those classrooms with high-ability groups. The independence of the ability groups in first grade was about equally affected by individualized attention.

In the third grade, the absence rate, independence, and Raven's scores were more positively affected by individualized attention if the classrooms had a mean score in the medium- or high-ability groups. Only the high-ability-group scores on the Coopersmith and IAR Success scale were positively affected by having adults working with one child. The medium- and low-ability-group scores on the IAR Failure scale were negatively affected by the individualized attention--suggesting that the higher ability children take responsibility for their success if they are dealt with on a one-to-one basis, and the children with less entering ability take less responsibility for their success or failure if they receive individualized attention.

The MAT scores were negatively affected in all ability groupings in both grade levels by individualized attention. In the third grade, the correlations were low and the least effect was recorded in the third grade high-ability group. As was noted earlier, other configurations (such as small groups for first grade and large groups for third grade) were related to reading achievement.

B. Regressions

1. Stepwise Regressions

The purpose of this section is to examine the relationship of the process variables, as a group, to the outcome scores. In the previous part, we examined the relationship of classroom processes to outcome scores by looking at the partial correlations of each of a selected set of classroom observation variables with each outcome variable. Obviously, many of the classroom observation variables included in the partial correlation analysis are closely related, either because of the way they are defined or because certain processes occur together in the classroom. Table 121 presents the correlations among some of the process variables that were found to have high partial correlations with the designated outcome score. Also included are the correlations of the process variables with the outcome test score and the baseline WRAT score. An examination of this table reveals that, as expected, most of the correlations among the process variables are moderately high, between .30 and .50, with some as high as .80.

Table 121

CORRELATIONS AMONG SELECTED PROCESS VARIABLES, OUTCOME SCORES, AND BASELINE WRAT
FIRST AND THIRD GRADES
MAT READING

Variables		F71	S73 MAT Read-	Var.	Var.	Var.	Var.	Var.	Var.	Var.	Var.	Var.	Var.
No.	Name	WRAT	ing	67	88	163	240	402a	412a	469a	509c	566c	582c
		FIRST GRADE (N=105)											
F71	WRAT	1.00	.71	.06	-.11	.03	-.01	-.09	-.09	-.10	-.07	.06	-.06
S73	MAT Reading		1.00	.32	.09	.33	.15	.13	.22	.15	.23	.39	.20
67	Reading, alphabet, language development			1.00	.32	.85	.52	.38	.53	.37	.55	.54	.38
88	Teacher with small group				1.00	.18	.21	.42	.49	.38	.36	.43	.46
163	Approximate number of children involved in Reading, all days observed					1.00	.39	.43	.59	.41	.48	.51	.35
240	Texts, workbooks/Academic Activities						1.00	.30	.42	.29	.29	.26	.26
402a	Adult praise, academic							1.00	.69	.93	.37	.38	.43
412a	Adult feedback to child responses to adult academic commands, requests, and questions								1.00	.61	.51	.59	.57
469a	All adult reinforcement with tokens									1.00	.37	.35	.35
509c	Child self-instruction, academic										1.00	.77	.27
566c	Total academic verbal interactions											1.00	.64
582c	Adult academic commands, requests, and direct questions to children												1.00

Variables		F69	S73 MAT Read-	Var.	Var.	Var.	Var.	Var.	Var.	Var.	Var.	Var.
No.	Name	WRAT	ing	15	146	163	242	353a	363a	441a	444a	566c
		THIRD GRADE (N=57)										
F69	WRAT	1.00	.65	.19	-.00	-.02	.08	-.11	-.13	-.08	.16	.03
S73	MAT Reading		1.00	.49	.36	.12	.24	.16	.16	.34	.42	.29
15	Child/Teacher and Aide Ratio (number of children over teachers and aides)			1.00	.59	-.02	.10	.13	.08	.59	.40	-.04
146	Large group with teacher/Reading				1.00	.08	.27	.36	.32	.71	.36	.16
163	Approximate number of children involved in Reading, all days observed					1.00	.70	.41	.45	.03	.29	.51
242	Percent CCLs in which an academic activity is occurring						1.00	.48	.53	.02	.31	.54
353a	Adult commands, requests, and direct questions to groups of children, academic							1.00	.89	.39	.39	.54
363a	Child group response to adult academic commands, requests, or direct questions								1.00	.30	.38	.66
441a	Adult communication or attention focus, large group									1.00	.40	-.00
444a	Adult movement										1.00	.30
566c	Total academic verbal interactions											1.00

Table 121 (Concluded)

CORRELATIONS AMONG SELECTED PROCESS VARIABLES, OUTCOME SCORES, AND BASELINE WRAT
FIRST AND THIRD GRADES
MAT MATH

No.	Variables Name	F71 WRAT	S73 MAT Math	Var. 402a	Var. 412a	Var. 509c	Var. 17	Var. 66	Var. 140	Var. 360a	Var. 395a	Var. 399a	Var. 406a	Var. 435a
	FIRST GRADE (N=105)													
F71	WRAT	1.00	.59	-.09	-.09	-.07	.12	.15	.12	-.02	.03	-.09	.04	.14
S73	MAT Math		1.00	.26	.31	.16	.28	.33	.36	.32	.25	.27	.38	.42
402a	Adult praise, academic			1.00	.69	.37	.42	.28	.35	.56	.12	.95	.42	.52
412a	Adult feedback to child responses to adult academic commands, requests, and questions				1.00	.51	.51	.40	.45	.77	.74	.61	.51	.70
509c	Child self-instruction, academic					1.00	.23	.16	.19	.53	.32	.35	.38	.58
17	Total class duration						1.00	.33	.36	.32	.34	.41	.28	.38
66	Numbers, math, arithmetic							1.00	.93	.46	.32	.24	.33	.46
140	Approximate number of children involved in Math, all days observed								1.00	.45	.34	.28	.35	.45
360a	Child responses, academic									1.00	.50	.45	.58	.83
395a	Adult acknowledgment to children, academic										1.00	.03	.36	.53
399a	Adult reinforcement with token, academic											1.00	.36	.43
406a	Adult positive corrective feedback, academic												1.00	.52
435a	Total academic verbal interactions													1.00

No.	Variables Name	F69 WRAT	S73 MAT Math	Var. 353a	Var. 363a	Var. 444a	Var. 17	Var. 66	Var. 123	Var. 140	Var. 240	Var. 402a	Var. 435a	Var. 582c
	THIRD GRADE (N=57)													
F69	WRAT	1.00	.41	-.11	-.13	.16	-.02	.03	-.10	.03	.19	-.25	.09	-.20
S73	MAT Math		1.00	.44	.42	.46	.38	.48	.39	.49	.31	.16	.41	.40
353a	Adult commands, requests, and direct questions to groups of children, academic			1.00	.89	.39	.09	.35	.44	.30	.16	.25	.60	.65
363a	Child group response to adult academic commands, requests, or direct questions				1.00	.38	.12	.43	.44	.37	.24	.34	.71	.61
444a	Adult movement					1.00	.09	.30	.42	.30	.21	.13	.32	.19
17	Total class duration						1.00	.28	.27	.33	.17	.15	.10	.12
66	Numbers, math, arithmetic							1.00	.24	.86	.34	.34	.49	.44
123	Large group with teacher/Math								1.00	.25	-.08	-.17	.14	.27
140	Approximate number of children involved in Math, all days observed									1.00	.36	.36	.42	.38
240	Texts, workbooks/Academic Activities										1.00	.35	.48	.25
402a	Adult praise, academic											1.00	.45	.38
435a	Total academic verbal interactions												1.00	.61
582c	Adult academic commands, requests, and direct questions to children													1.00

Because of the relationships among the process variables, it was impossible to determine from the partial correlations the unique contribution each variable made of the prediction of the outcome scores. It is also impossible to piece together the total relationship between the classroom processes and the outcome scores. In this section the relationship between the classroom process as a whole and the outcome scores is examined. Multiple regression analysis was used to this end.

A set of process variables was chosen separately for each outcome score based on the partial correlations in the first part of the section. A stepwise multiple linear regression was run separately for each grade level with each outcome score as the dependent variable and the set of selected process variables and the baseline WRAT score as the independent variables. The baseline WRAT score was placed in the regression on the first step. The process variables were added one at a time until a total of 20 variables had been included. Of particular interest in examining the relationship of the set of process variables to the outcome variables is the degree to which the set of process variables "predicted" the outcome after the effect of the baseline WRAT had been accounted for. The coefficient of determination, R^2, was used to this end. Since the baseline WRAT entered the regression at the first step, the R^2 on this step was a measure of the degree to which the baseline WRAT score accounted for the variance in outcome score. The difference between the value of R^2 at any subsequent stage and the R^2 at the first step was a measure of the degree to which the process variables provided a prediction of the outcome scores beyond that available from the baseline WRAT alone. The significance of the contribution of any variable that is added to the regression is indicated by the "f-to-enter" statistic. This statistic corresponds to the test of whether the variable, when it entered the regression, had a partial regression coefficient significantly different from zero. Variables were added until no further significant increases in R^2 occurred. It should be noted, however, that the obtained R^2 was an overestimate, since to some extent the procedure capitolizes on chance in the build up of the total value.

For the behavioral outcome variables (the process varialbes such as child questions and cooperation) and days absent, the WRAT R^2 values at the first step (where WRAT was entered) were zero or very small (see Table 122) indicating that the WRAT accounts for very little of the variance for the child behavior. For the test outcome variables, the WRAT R^2 values at the first step were high for the MAT reading at both grade levels, for the MAT math at first grade and for the Raven's at third grade. The WRAT R^2 values at the first step were modest for the MAT math and the IAR Success and Failure scales at third grade.

The contribution of the process variables to the R^2 value was substantial for all process variable outcome scores. For the behavioral outcome variables, the increment in R^2 from the first step ranged from .22 to .67 in first grade and from .38 to .61 in third grade. For days absent, the increment was an amazing .66 and .62 for first and third grade, respectively. For the test outcome variables, the increment ranged from .23 for MAT

Table 122

SUMMARY STATISTICS FOR THE STEPWISE REGRESSION ANALYSES

Outcome Variable	FIRST GRADE (N=105) Number of Selected Process Variables	R^2_{WRAT}	$R^2_{WRAT, Process Variables}$	Multiple R	Number of Process Variables (included in regression)*	THIRD GRADE (N=58) Number of Selected Process Variables	R^2_{WRAT}	$R^2_{WRAT, Process Variables}$	Multiple R	Number of Process Variables (included in regression)*
Behavioral Outcome Variables										
Child Questions	27	.00	.28	.53	2	27	.00	.29	.54	3
Self-Esteem	27	.00	.48	.69	5	27	.01	.42	.65	6
Child Independence	27	.00	.67	.82	5	27	.01	.41	.64	3
Task Persistence	27	.00	.44	.66	9	27	.06	.61	.78	6
Cooperation	27	.00	.32	.57	2	27	.10	.61	.78	5
Verbal Initiative	27	.00	.22	.47	3	27	.00	.38	.62	2
Days Absent	38	.01	.67	.82	14	38	.07	.69	.83	6
Test Outcome Variables										
MAT Math	75	.32	.74	.86	10	75	.17	.81	.90	8
MAT Reading	67	.50	.73	.85	8	66	.42	.79	.89	7
Ravens	--	--	--	--	--	97	.41	.86	.93	9
IAR-Success	--	--	--	--	--	18	.18	.57	.75	4
IAR-Failure	--	--	--	--	--	85	.04	.83	.91	11

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*This column contains the number of process variables that entered the stepwise regression with an "F-to-enter" that was significant at .05.

reading at the first grade to .79 for the IAR Failure scale at the third grade. All these increases are substantial. They are evidence that the classroom processes were definitely related to behavioral and test outcomes beyond the influence of initial ability. The results for the days-absent variable are very striking. They indicate, at least indirectly, that there may be a very strong relationship between classroom processes and the rate of absence. More than two-thirds of the variability in this outcome was accounted for by the classroom process variables and the baseline WRAT. Note that an R^2 value in the range of .67 to .69 corresponds to a multiple correlation in the neighborhood of .82.

In the test outcome domain, the contribution of the process variables were substantial across the board. For the MAT reading and math outcome scores, the results for first and third grade are very similar. The process variables added more than .40 to the R^2 value for MAT math and more than .25 to the R^2 value for MAT reading. For both grade levels the R^2 at the last step corresponded to a multiple correlation between .85 and .90. For the Raven's, the COI variables incremented the R^2 value by more than the baseline WRAT. This indicates that the classroom processes may be as important a factor as initial ability in accounting for performance on the Raven's. The results on the IAR Failure scale are also amazing. The baseline WRAT accounted for only 4% of the variability, and when the COI variables were added, the coefficient of determination was .83. This corresponds to a multiple correlation coefficient of over .90. Though such values are clearly overestimates the result provides compelling evidence for a strong relationship between the way children take responsibility for their failures and the classroom processes to which they are exposed.

The number of process variables included in the regressions before the "F-to-enter" dropped below the .05 level was a minimum of two, for Child Questions, and a maximum of 14, for days absent at the first grade level (see Table 122). For the most part, the number of process variables that entered the regression was between 2 and 6 for the behavioral outcomes and between 7 and 11 for the outcome test scores. The number of the variables that entered any particular regression relative to the number of process variables included is an indication of the high degree of dependency among the process variables.

Table 123 gives the detailed results for each dependent variable for the steps in the regression prior to the first encounter of an "F-to-enter" that was not significant at the .05 level. Included for each step are: the variable that entered; the multiple correlation coefficient R; the coefficient of determination R^2; the change in R^2 from the previous step; and the "F-to-enter." The interested reader is referred back to the partial correlation discussions in the first part of this section for the detailed discussion.

Table 123

STATISTICS FROM THE STEPWISE REGRESSION OF THE BASELINE WRAT
AND SELECTED COI VARIABLES ON THE OUTCOME SCORES

Step	Variable No.	Variable Name	Multiple R	R^2	RSQ Change	F-to-Enter
Dependent Variable: Child Questions						
First Grade (N=105)						
1		F71 WRAT	.025	.001	.001	.067
2	438a	Adult communication or attention focus, child	.385	.148	.147	17.641
3	389a	Adult general comments to children	.528	.279	.131	18.359
Third Grade (N=57)						
1		F69 WRAT	.056	.003	.003	.176
2	389a	Adult general comments to children	.366	.134	.131	8.169
3	236	TV	.499	.250	.115	8.145
4	398a	All adult praise to children	.540	.292	.042	3.103
Dependent Variable: Self-Esteem						
First Grade (N=105)						
1		F71 WRAT	.045	.002	.002	.213
2	440a	Adult communication or attention focus, small group	.477	.228	.226	29.815
3	439a	Adult communication or attention focus, two children	.581	.337	.109	16.680
4	394a	All adult acknowledgment to children	.627	.393	.056	9.147
5	451a	Adult academic commands, requests, and direct questions to children	.666	.443	.050	8.946
6	104	Adult with one child	.696	.484	.041	7.816
Third Grade (N=57)						
1		F69 WRAT	.090	.008	.008	.449
2	390a	Adult task-related comments to children	.291	.084	.076	4.503
3	389a	Adult general comments to children	.401	.161	.077	4.848
4	240	Texts, workbooks	.474	.224	.063	4.232
5	83	Wide variety of activities over one day	.536	.287	.063	4.486
6	24	Child selection	.604	.365	.078	6.110
7	394a	All adult acknowledgment to children	.646	.418	.053	4.462
Dependent Variable: Child Independence						
First Grade (N=105)						
1		F71 WRAT	.060	.004	.004	.373
2	398a	All adult praise to children	.598	.357	.354	56.158
3	104	Adult with one child	.732	.536	.178	38.782
4	16	Child/adult ratio	.779	.606	.070	17.862
5	82	Wide variety of activities; concurrent	.805	.649	.043	12.001
6	439a	Adult communication or attention focus, two children	.817	.668	.019	5.626
Third Grade (N=57)						
1		F69 WRAT	.094	.009	.009	.487
2	394a	All adult aknowledgment to children	.482	.232	.223	15.687
3	104	Adult with one child	.580	.336	.104	8.302
4	452a	Adult open-ended questions to children	.641	.411	.075	6.596
Dependent Variable: Task Persistence						
First Grade (N=105)						
1		F71 WRAT	.054	.003	.003	.306
2	83	Wide variety of activities over day	.367	.135	.132	15.529
3	375a	Adult instructs an individual child	.445	.198	.063	7.917
4	237	Audio visual equipment	.487	.237	.040	5.190
5	240	Tests, workbooks	.524	.275	.038	5.119

Table 123 (Continued)

STATISTICS FROM THE STEPWISE REGRESSION OF THE BASELINE WRAT
AND SELECTED COI VARIABLES ON THE OUTCOME SCORES

Step	Variable No.	Variable Name	Multiple R	R^2	RSQ Change	F-to-Enter
Dependent Variable: Task Persistence						
First Grade (N=150) (Continued)						
6	451a	Adult academic command, request, and direct questions to children	.556	.309	.034	4.877
7	440a	Adult communication or attention focus, small group	.587	.344	.035	5.161
8	16	Child/adult ratio	.609	.371	.027	4.053
9	365a	Adult responses to child request or question, nonacademic	.633	.401	.030	4.794
10	438a	Adult communication or attention focus, one child	.661	.437	.036	6.054
Third Grade (N=57)						
1		F69 WRAT	.241	.058	.058	3.377
2	240	Texts, workbooks	.592	.350	.292	24.280
3	364a	Adult responses to child requests or questions, academic	.658	.432	.082	7.684
4	83	Wide variety of activities over one day	.698	.488	.055	5.621
5	16	Child/adult ratio	.725	.526	.038	4.085
6	104	Adult with one child	.756	.572	.046	5.421
7	239	Math or science equipment	.781	.610	0.38	4.746
Dependent Variable: Cooperation						
First Grade (N=105)						
1		F71 WRAT	.004	.000	.001	.128
2	240	Texts, workbooks	.491	.241	.241	32.759
3	390a	Adult task-related comments to children	.569	.324	.082	12.421
Third Grade (N=57)						
1		F69 WRAT	.317	.100	.100	6.144
2	240	Texts, workbooks	.571	.326	.226	18.082
3	45	Total different resource categories coded "used today" over three days	.646	.417	.091	8.271
4	40	General equipment, materials used	.723	.523	.106	11.535
5	82	Wide variety of activities, concurrent	.754	.569	.046	5.479
6	237	Audio visual equipment	.779	.606	.037	4.717
Dependent Variable: Verbal Initiative						
First Grade (N=105)						
1		F71 WRAT	.020	.000	.000	.040
2	365a	Adult responses to child request or question, nonacademic	.312	.098	.098	10.980
3	28	Instructional materials used	.379	.144	.046	5.467
4	45	Total different resource categories coded "used today" over three days	.463	.215	.071	9.032
Third Grade (N=57)						
1		F69 WRAT	.002	.000	.000	.151
2	104	Adult with one child	.497	.247	.247	18.033
3	451a	Adult academic commands, requests, and direct questions to children	.618	.382	.081	6.934

Table 123 (Continued)

STATISTICS FROM THE STEPWISE REGRESSION OF THE BASELINE WRAT AND SELECTED COI VARIABLES ON THE OUTCOME SCORES

Step	Variable No.	Variable Name	Multiple R	R^2	RSQ Change	F-to-Enter
Dependent Variable: Days Absent--Positive and Negative						
First Grade (N=105)						
1		F71 WRAT	.118	.014	.014	1.456
2	104	Adult with one child	.379	.144	.130	15.470
3	231	Volunteer involved	.475	.226	.082	10.700
4	596c	Adult feedback to children for behavior	.539	.290	.064	9.065
5	471a	Adults attentive to large group	.604	.365	.075	11.733
6	462a	All positive behavior	.638	.406	.041	6.786
7	85	Teacher without children	.667	.445	.039	6.765
8	256	Practical skills acquisition	.691	.478	.033	6.025
9	127	Large group with aide	.710	.504	.026	4.965
10	417a	Children attentive to adults, academic	.727	.529	.025	5.024
11	453a	Adult responds to child's question with a question	.754	.568	.039	8.349
12	353a	Adult commands, requests, and directs questions to groups of children, academic	.770	.593	.026	5.794
13	601c	All adult neutral corrective feedback	.788	.621	.027	6.543
14	585c	Child's extended response to question	.808	.653	.033	8.533
15	125	Two children with aide	.819	.670	.017	4.454
Third Grade (N=57)						
1		F69 WRAT	.272	.074	.074	4.485
2	463a	All negative behavior	.536	.288	.214	16.500
3	125	Two children with aide	.624	.390	.102	9.012
4	114	One child without adults	.710	.504	.115	12.260
5	371a	Child extensive response to adult open-ended question	.758	.575	.071	8.689
6	417a	Children attentive to adults, academic	.801	.642	.067	9.477
7	351a	Adult commands, requests, and directs questions to groups of children, nonacademic	.829	.687	.045	7.274
Dependent Variable: MAT Math						
First Grade (N=105)						
1		F71 WRAT	.594	.323	.353	56.095
2	412a	Adult feedback to children responding to adult academic command or question	.697	.485	.133	26.319
3	369a	Child extended response, nonacademic	.742	.550	.065	14.570
4	408a	Adult positive corrective feedback, academic	.771	.594	.044	10.790
5	441a	Adult communication or attention focus, group	.791	.625	.031	8.309
6	469a	All adult reinforcement with tokens	.809	.654	.029	8.197
7	370a	Child extended responses, academic	.825	.681	.027	8.074
8	354a	Adult communication, request, and direct question to individual child, academic	.837	.701	.020	6.386
9	76	Social interaction	.845	.714	.014	4.538
10	360a	Child responses, academic	.852	.727	.012	4.177
11	449a	Adult neutral corrective feedback, academic	.859	.739	.012	4.241
Third Grade (N=57)						
1	-	Classroom mean F69 WRAT	.410	.168	.168	11.096
2	582c	Adult academic command, request, and direct question to children	.642	.412	.245	22.480
3	135	Large group with any adults	.742	.551	.139	16.387
4	380a	Child self instructs, academic, with objects	.785	.616	.064	8.694
5	372a	Child presents information to a group	.818	.669	.053	8.199
6	66	Numbers, math, arithmetic	.848	.719	.050	8.871
7	24	Child selection	.872	.760	.042	8.484
8	76	Social interaction	.888	.788	.028	6.322
9	585c	Child's extended response to question	.898	.807	.019	4.620

Table 123 (Concluded)

STATISTICS FROM THE STEPWISE REGRESSION OF THE BASELINE WRAT
AND SELECTED COI VARIABLES ON THE OUTCOME SCORES

Step	Variable No.	Variable Name	Multiple R	R^2	RSQ Change	F-to-Enter
Dependent Variable: MAT Reading						
First Grade: (N=105)						
1		F70 WRAT	.708	.501	.501	103.404
2	566c	Total academic verbal interaction	.791	.625	.124	33.888
3	163	Total weight in reading groups	.805	.648	.023	6.472
4	493c	Individual child response to adult academic command, request, or direct questions	.812	.660	.012	3.565
5	600c	All adult reinforcement with tokens	.825	.680	.020	6.131
6	370a	Child extended response, academic	.834	.696	.016	5.012
7	449a	Adult neutral corrective feedback, academic	.842	.709	.014	4.619
8	89	Teacher with large group	.849	.720	.011	3.721
9	107	Adult with large group	.856	.733	.012	4.415
Third Grade (N=57)						
1		F70 WRAT	.649	.421	.421	40.016
2	135	Large group with any adults	.763	.582	.161	20.753
3	15	Child/teacher and aide ratio	.787	.620	.038	5.245
4	566c	Total academic verbal interaction	.814	.663	.043	6.681
5	17	Total class duration	.837	.701	.038	6.479
6	157	Small group with any adults	.866	.751	.050	10.069
7	24	Child selection	.878	.772	.021	4.452
8	158	Large group with any adults	.889	.790	.018	4.076
Dependent Variable: Ravens Third Grade (N=57)						
1		F69 WRAT	.639	.408	.408	38.584
2	412a	Adult feedback to child response to adult academic command or question	.749	.561	.153	19.098
3	150	Large group with aide	.797	.635	.075	11.100
4	593c	All positive behavior	.835	.697	.062	10.809
5	524c	Child corrective feedback	.858	.736	.039	7.584
6	357a	All adult questions to children	.873	.761	.026	5.467
7	111	Small group of children with any adult	.891	.793	.032	7.699
8	185	Large group without adults	.905	.819	.026	6.903
9	44	Total number different resource categories coded "present" over three days	.919	.845	.026	8.120
10	519c	Child task-related comments to adults	.927	.858	.014	4.485
Dependent Variable: IAR - Success Third Grade (N=57)						
1		F69 WRAT	.429	.184	.184	12.416
2	79	Transitional activities	.594	.353	.169	14.117
3	184	Small group without adults	.657	.432	.078	7.319
4	145	Small group with teacher	.713	.508	.077	8.096
5	157	Small group with any adults	.755	.570	.062	7.317
Dependent Variable: IAR - Failure Third Grade (N=57)						
1		F69 WRAT	.200	.040	.040	2.285
2	138	Small group of children without adults	.599	.358	.319	26.818
3	517c	Child task-related comments to children	.698	.488	.129	13.385
4	15	Child/teacher and aide ratio	.745	.555	.067	7.792
5	515c	Small group working together using concrete objects	.775	.600	.045	5.774
6	366a	Adult responds to child question with open-ended question	.805	.648	.048	6.855
7	93	Aide with two children	.828	.685	.037	5.768
8	242	Percentage of CCLs on which an academic activity is occurring	.859	.738	.053	9.781
9	222	Small group of children with any adults	.878	.771	.032	6.622
10	350a	Child questions to adults	.890	.793	.022	4.895
11	135	Large group with any adults	.901	.812	.020	4.702
12	159	One child without adults	.911	.830	.017	4.463

2. The Cooley-Lohnes Model

In addition to the partial correlations and the stepwise regressions, the relationship of classroom processes and test outcomes was further examined by using a regression model proposed by Cooley and Lohnes. They formulated a model of instructional process components (see Cooley and Lohnes) Evaluative Inquiry in Education, in press, described as "a conceptual scheme for guiding the development of the instructional events which take place in classrooms that are related to the kind and amount of classroom learning that will occur." The model synthesizes and extends the earlier work of Carroll (1963), Glaser and Resnick (1972), and Gagne (1973). It posits three factors as influencing criterion achievement: initial ability, time spent on relevant learning tasks, and instructional efficiency. The latter two factors are the instructional components found in the classroom. Each of these instructional components may be further subdivided.

Time spent on relevant learning tasks is a function of

- Opportunity--the time allotted to activities relevant to achievement.
- Motivation--the motivation of the child to use the time allotted.

Instructional efficiency is a function of

- The way learning tasks are structured and the way they are selected or assigned to pupils.
- The nature and frequency of the interactions of pupils with teachers, aides, other pupils, and instructional materials. These interactions are called instructional events.

A diagram of the Cooley and Lohnes model is presented in Figure 41. As indicated there, pupil ability is viewed as not only affecting outcome scores but also as influencing the instructional process; e.g., the efficiency of instructional events is dependent on the pupils' initial ability. Cooley and Lohnes do not specify the detailed functional relationships among initial ability, instructional processes, and existing ability. This model provided the conceptual scheme for generating variables for the regression analyses. The Cooley model was used with two separate sets of data collected by SRI. The first set was collected in Spring 1972 and the analysis was reported by Emrick (1974). (In this report we are discussing only the analysis for first grade.) The second set was collected in Spring 1973 and is analyzed in the present report. The instructional components for the Cooley model and the process variables recommended by Cooley which are included in each component are presented in Table 124. Cooley's selection of variables was conditioned primarily

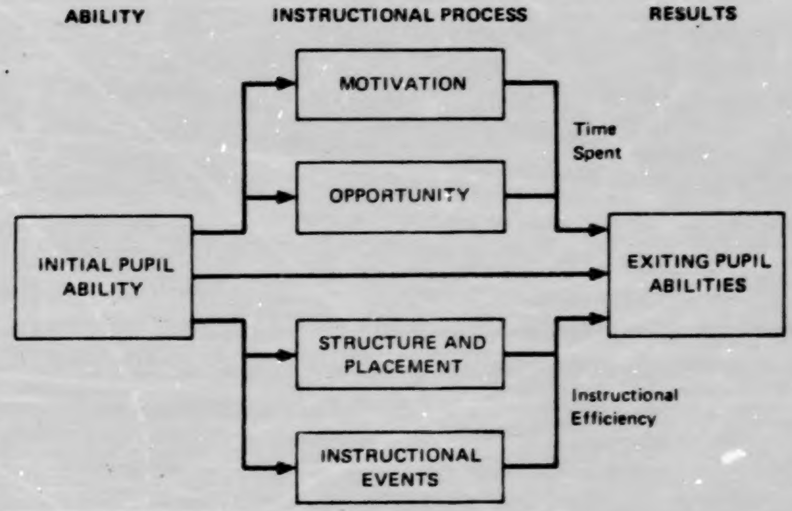
ABILITY
INSTRUCTIONAL PROCESS
RESULTS
MOTIVATION
OPPORTUNITY
Time Spent
INITIAL PUPIL ABILITY
EXITING PUPIL ABILITIES
STRUCTURE AND PLACEMENT
INSTRUCTIONAL EVENTS
Instructional Efficiency

FIGURE 41 DIAGRAM OF THE COOLEY AND LOHNES MODEL OF INSTRUCTIONAL PROCESS

Table 124

CLASSROOM OBSERVATION VARIABLES INCLUDED
IN EACH INSTRUCTIONAL COMPONENT--COOLEY MODEL

Instructional Process Component	Variable Number	Variable Name
Opportunity	249	Reading, alphabet, language development/ longitudinal
Motivation	398a	All adult praise to children
	403a	Adult praise, behavior
	82	Wide variety of activities, concurrent, negate
Structure and Placement	146	Large group with teacher/reading, negate*
	257	Teacher with one child, academic activities/ longitudinal
	258	Aide with one child, academic activities/ longitudinal
	259	Volunteer with one child, academic activities/ longitudinal
	240	Texts, workbooks/academic activities*
	239	Math or science equipment/academic activities*
	238	Exploratory materials/academic activities*
	260	Children independent, academic activities/ longitudinal
Instructional Events	358a	All child responses
	360a	Child responses, academic
	406a	Adult positive corrective feedback, academic
	407a	Adult negative corrective feedback, academic
	44[illegible]a	Adult neutral corrective feedback, academic
	[illegible]2a	Adult feedback, to child responses to adult academic commands, requests, direct questions
	394a	All adult acknowledgment to children
	396a	Adult acknowledgment to children, behavior

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*These variables, although similar, are not identical to those used in the analysis of Spring 1972.

by the educational theory of the Pittsburgh Individualized Early Learning Program. These variables were chosen a priori without knowledge of the partial correlations or stepwise regressions. As seen in Table 124, four process variables have definitions in the present study that differ slightly from those used in the study that was conducted on the Spring 1972 data. The value of each component was found by summing the values of its process variables. Where indicated (see Table 117) the negative of the process variable was used.

A commonality analysis approach was used to assess both the shared and the unique predictive power of each independent variable and of each set of independent variables. In commonality analysis,* the variation of the dependent variable is divided into:

(1) The unique variance that may be predicted uniquely by each independent variable respectively;

(2) The shared variance that may be predicted by overlapping aspects of the independent variables; and

(3) The error variance, which is not predictable by the regression.

For the Cooley model, the independent variables were partitioned into two groups:

- Initial ability--the baseline test score
- The instructional process components.

Regressions were then run with: (1) the initial ability alone, (2) the instructional process variables alone, and (3) the initial ability and instructional process variables together.

Emrick (1974) diagrammed the relationships between the coefficients of determination (R^2) and the component of variance in the commanality analysis as shown in Figure 42 where R_A^2 , R_I^2 , and R_A^2, represent the coefficients of determination for the three regression runs, respectively. That is, R_A^2 is the proportion of criterion variance accounted for by initial ability, R_I^2 is the proportion of the criterion v variance accounted for by instructional components, and $R_{A,I}^2$ is the proportion of criterion variance accounted for by initial ability and the instructional components. Then,

$R_{A,I}^2 - R_I^2$ = the proportion of criterion variance due uniquely to initial ability.

$R_{A,I}^2 - R_A^2$ = the proportion of criterion variance due uniquely to the instructional components.

$R_A^2 + R_I^2 - R_{A,I}^2$ = the proportion of criterion variance shared by initial ability and instructional components.

$1 - R_{A,I}^2$ = the proportion of criterion variance unaccounted for (residual or error).

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*For more details concerning commonality analysis the reader is referred to Beaton (1973) and to Mayeske et al. (1969).

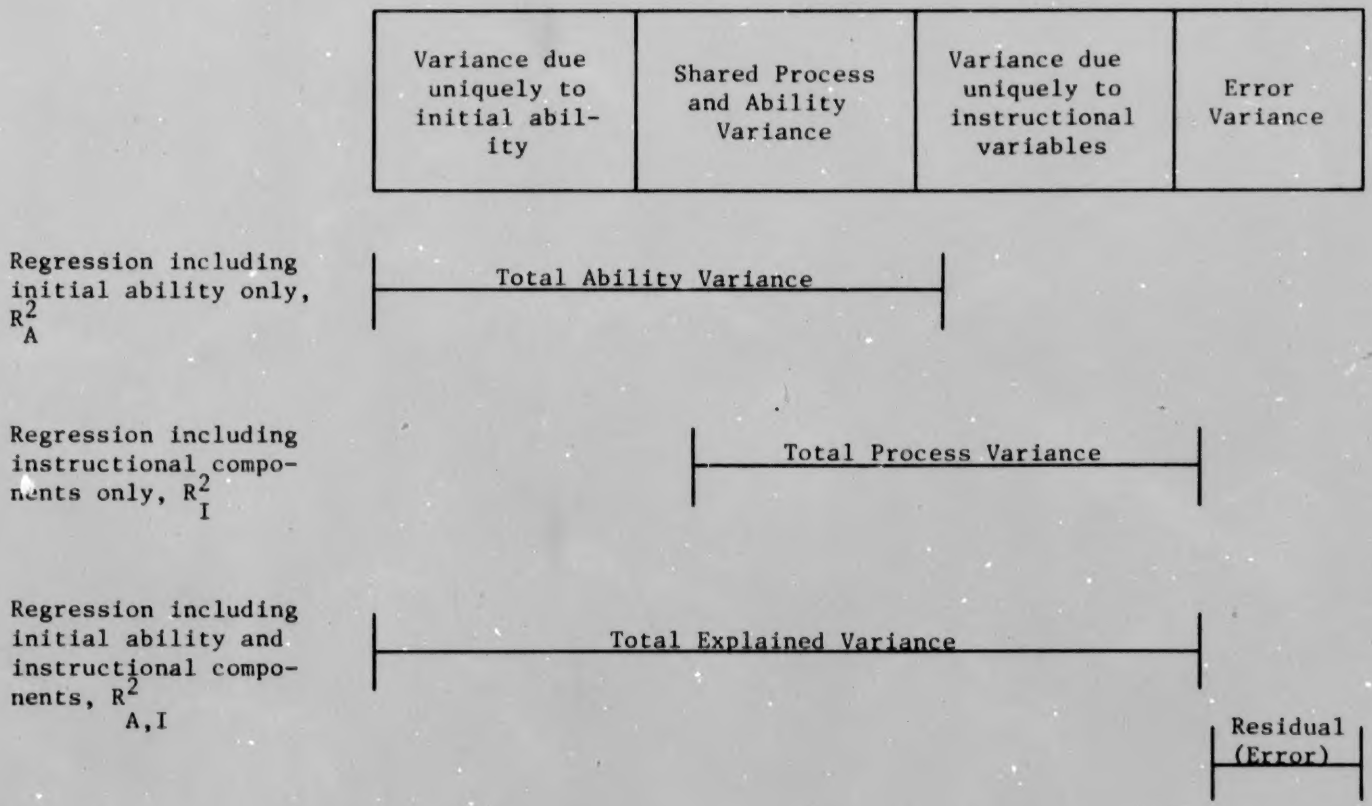
Variance due uniquely to initial ability
Shared Process and Ability Variance
Variance due uniquely to instructional variables
Error Variance
Regression including initial ability only, R^2_A
Total Ability Variance
Regression including instructional components only, R^2_I
Total Process Variance
Regression including initial ability and instructional components, $R^2_{A,I}$
Total Explained Variance
Residual (Error)

FIGURE 42 TOTAL CRITERION VARIANCE

The Emrick analysis carried out using the Spring 1972 classroom observation data was repeated as nearly as possible using the data collected in Spring 1973. First grade classrooms were the unit of analysis in both studies. The same posttest scores were used, and essentially the same classroom observation variables. The pretest score used in the Spring 1972 study was the sum of the Wide Range Achievement Test total score, the Peabody Picture Vocabulary Test score, and an item-sampled version of the Preschool Inventory (PSI) score. The test battery was changed and only the baseline WRAT score was available for use as a baseline for the present study. The sum of the MAT total Reading and Word Analysis scores was used to measure achievement ability. The first grade sample used in the 1972 study represented one site each for the following sponsors: Bank Street, University of Arizona, University of Georgia, University of Florida, and University of Oregon. All five of the sites included in the 1972 sample were from the southern and rural region of the United States and they did not have kindergartens. The first grade baseline data had been collected when the children entered school in Fall 1971 and, therefore, the pretest scores were separated from the posttest scores by only nine months. Thirty classrooms were included. The first graders in the present study represent 25 diverse geographical locations and entered school as kindergarteners; 112 classrooms were included. Their pretest and posttest data are separated by approximately 20 months. Thus the pretest of the second study might be expected to predict less criterion variance than the pretest of the first study.

The means and standard deviations of the predictor and criterion variables are summarized in Table 125 for the 30 entering first grades in the 1972 classroom sample and the 112 first grades (entered kindergarten) in the 1973 sample. The negative means for motivation and structure and placement variables for the 1973 sample resulted from the inclusion of some observation variables which were negatively weighted.

Table 125

MEANS AND SD'S OF FIRST GRADE MAT READING SCORES

	1972 First Grade		1973 First Grade	
Variables	Mean	SD	Mean	SD
Predictor Variables				
Entering Ability on Tests	121.10	14.87	29.60	7.00
Motivation	12.60	1.16	- .09	2.10
Opportunity	.62	.183	.67	.14
Structure and Placement	5.31	2.66	-17.50	18.40
Instructional Events	26.40	7.85	28.20	9.30
Criterion Variables				
Outcome Test Scores	55.80	18.10	67.18	16.00

These results indicate that the two samples are comparable only in terms of opportunity and instructional events. The baseline test dimensions are not comparable. Although the same criterion test was used, the 1973 sample of classrooms had higher scores than the 1972 sample.

The results of the regression analyses on the two samples are presented in Tables 126 and 127.

Table 126

COEFFICIENTS OF DETERMINATION FOR THE REGRESSION ANALYSES

	1972 First Grade (N = 30)	1973 First Grade (N = 112)
R^2_A (ability)	.46	.53
R^2_I (instructional dimensions)	.16	.11
$R^2_{A,I}$ (total)	.72	.63

Table 127

COMPONENTS ANALYSIS OF FIRST GRADE CLASSROOMS

	Percent of Total Criterion Variance Due to Source	
Source of Variance	1972 (N=30)	1973 (N=112)
Entering Ability (unique)	56	52
Instructional process (unique)	26	10
Shared (ability and process)	- 10	1
Total accounted for	72	63
Error	28	37
Total	100	100

For the first grade data collected in Spring 1972, Emrick (1974) reports

> "Interpretation of the results of analyses on the first grade sample was difficult because of a negative covariance among process and performance variables. This result, which is relatively rare in educational data, tends to suppress the apparent univariate relationships of predictors to the criterion and hence has been labeled 'suppressor effect' (see, e.g., McNemar, 1969, pp. 210-211). Actually, what this effect indicates is a negative shared commonality....
>
> Examination of the intercorrelation matrix indicates that although both ability and process variables were positively related to the criterion, they tended to be negatively related to each other. Apparently, classrooms in this first grade sample in which more effective instructional procedures were employed tended to be below average on the ability variable, thus yielding the observed interaction. Nevertheless, the important feature is the proportion of criterion variance due uniquely to process variables--nearly 26 percent."

In spite of the different baseline test battery used in the two studies and the difference in time between pretest and posttests, the variance accounted for by entering ability (unique) is similar for both studies (see Table 127). However, the instructional process (unique) accounts for more than twice as much of the variance in the 1972 study as in the 1973 study. Shared ability and process is a negative 10% for the 1972 study and accounts for only 1% of the variance in the 1973 study. The percentages of variance accounted for by the separate instructional component variables are presented in Table 128.

Table 128

PERCENT OF CRITERION VARIANCE UNIQUELY ACCOUNTED FOR BY EACH INSTRUCTIONAL PROCESS VARIABLE IN THE COOLEY MODEL

Variables	1972 First Grade (N = 30)	1973 First Grade (N = 112)
Motivation	0	2
Opportunity	17	0
Structure and placement	3	0
Instructional events	1	2

The instructional process variable "opportunity" uniquely accounts for 17% of the criterion variance in the 1972 study and for none of the variance in the 1973 study. Whereas the combined instructional process variables account for 10% of the criterion variance in the 1973 study (see Table 127), only 4% is accounted for (uniquely) by the single variables "Motivation" and "Instructional events" (see Table 128). This indicates that the effect of the combined interaction of the process variables in explaining the criterion test scores is greater than the addition of the percentages of the variances of the single process variables.

Although the percent of variance explained by the unique components for instructional process variables are not as large in the present study as those found in the Emrick study, the percent of variance explained is still larger than most other studies have reported. Much of the research reporting "no effect" (other than entering ability) has used such variables as teacher education, experience, or school facilities. These results suggest that more variance is explained when observational data are used.

If a secondary analysis were conducted to further capitalize on chance, a set of variables which were distinguished in the stepwise regressions as powerful predictors (see Table 129), could be used in the Cooley-Lohnes regression model and the amount of variance accounted for by the process variables would probably increase.

C. Summary

The results of the partial correlations, and regression analysis suggest that what teachers do in classrooms may well make a difference. At least it is clear that specific classroom processes can be identified as related to the Raven's, IAR, MAT, absence rate, and child behaviors. Inservice teacher training programs as well as schools of education might find these results useful in instructing students in teaching practices which might have an impact upon the growth and development of children. Essentially, it appears that in education we get what we pay for (or emphasize). In classrooms where reading and computation are emphasized, the scores on tests of reading and math are higher. In classrooms where a wide variety of activities and materials are emphasized, the scores on the Raven's perceptive problem-solving test are higher, and children are absent from school less often.

A speculation can be made that if math and reading were emphasized part of the day and a wide variety of other activities were offered for the other part of the day, several dimensions of growth and development might be enhanced.

In addition, an analysis of two process variables which were partitioned on the basis of entering ability scores as judged by the WRAT suggests that children in classrooms which have low entering ability mean scores may profit more from a higher rate of praise and more time spent in math than children in classrooms with comparatively higher entering ability mean scores. This study suggests the value of examining process variables to see how they interact with entering abilities of children. Such information might maximize the learning program of individual children.

Secondary analyses, such as an extended interaction treatment study, a cross-validation study, a factor analysis of process variables, or a dimensionality study of process variables are likely to yield more information and perhaps a more parsimonious summary of the findings.

Table 129

RECOMMENDED VARIABLES FOR USE IN COOLEY'S REGRESSION MODEL

Opportunity	
Var. 17	Duration of Day
Var. 163	Approximate number of children involved in reading
Var. 242	Percent of CCLs in which an academic activity is occurring
Motivation	
Var. 402a	Adult praise, academic
Var. 469a	All adult reinforcement with tokens
Structure and Placement	
Var. 146	Large group with teacher
Var. 240	Text books and workbooks
Var. 444a	Adult movement
Instructional Events	
Var. 353a	Adult requests and direct questions, academic
Var. 493c	Individual child response to academic questions
Var. 412a	Adult feedback to child response to adult academic questions
Var. 441a	Adult communication focus--large group
Var. 509c	Child self-instruction
Var. 566c	Total academic verbal interactions
Var. 449a	Neutral corrective feedback, academic

CHAPTER VIII
SUMMARY

The primary purpose of this report has been to assess the classroom implementation of the seven Follow Through sponsors included in the study. An important question continually raised by government agencies and educators has been "Does the Follow Through Program of Planned Variations exist?" (i.e., are a variety of educational programs being successfully implemented and do these models differ significantly from each other?). The seven programs selected for study in this analysis represent a wide spectrum of innovative educational theories represented in Follow Through. The range includes two more behavioristic models (The University of Kansas and the University of Oregon), a model based upon the theory of Piaget (High/Scope), an open school model based upon English Infant School Theory (EDC), and three other models which each have their own particular combinations of theory and practice drawn from Piaget, Dewey and the English Infant Schools (Far West Laboratory, University of Arizona, and Bank Street).

To study sponsor implementation, two questions were asked: (1) are the individual models consistently implemented in accordance with the sponsor prestated philosophies and objectives? and (2) do meaningful differences as planned exist among the individual sponsor models; that is, have the planned variations actually been achieved? A third question was asked which is central to the primary objective of the Follow Through evaluation "How are children affected by the different approaches embodied within these planned educational programs?"

The answers to these questions are not only basic to the overall evaluation of Follow Through, but are also of importance to future planning of educational intervention programs. An affirmative answer to the first question would help establish that educational innovations have been introduced as planned and that the Follow Through program has met its goal of planned variation. An affirmative answer to the question of implementation would help establish that Follow Through models are exportable to other locations and that the sponsors have established meaningful delivery systems that enable them to implement their models consistently in diverse locations. Finally, information regarding how classroom instructional processes used in the various programs, impact upon the growth and development of children is of critical importance to all educators who plan school programs.

In January 1973, Stanford Research Institute was authorized by the U.S. Office of Education to extend its classroom observation activities in order to address these issues in depth. The results and findings of the study are summarized in this chapter. These results are based upon data collected in Spring 1973 in 36 project locations. The sample represents approximately 20 first grade and 20 third grade classrooms for each of seven Follow Through sponsors at five or more sites per sponsor.* Program implementation in the classroom is judged on the basis of two criteria: (1) the extent to which a sponsor's classrooms are found to be uniform on selected implementation variables, and (2) the extent to which a sponsor's classrooms differ from the traditional Non-Follow Through classrooms on the same variables.

A. Classroom Implementation

1. Methodology Used in the Study of Implementation

The first step in the assessment of classroom implementation was to describe each educational model in detail. The model descriptions were prepared by SRI and reviewed by the sponsors and then revised according to the sponsor's specifications. The second step was to create variables from the codes used in the observation instrument which would describe representative elements of each sponsor's model. Each sponsor was sent the relevant variable list and asked to rate each variable according to: (1) its importance to this model; and (2) the frequency with which the variable was expected to occur relative to a conventional classroom. Thus, a list of variables was selected for each of the seven models. These ranged in number from 31 for University of Oregon to 55 for Bank Street. Admittedly, the critical list of variables only in part describes a sponsor's model. Important subtle processes of some of the programs such as developing intrinsic motivation have not been assessed. Reducing a model to a list of variables will thus provide only a partial picture of implementation.

Since the Follow Through programs are intended to be innovative and to represent alternatives to the conventional classroom, a pool of Non-Follow Through classrooms was used as the standard from which Follow Through classrooms were expected to differ in specified ways. The standards were established separately for first and third grades.

A non-parametric scaling technique** was used in the implementation analysis. Implementation scores for each sponsor were determined by rank ordering the Non-Follow Through classroom mean scores on each sponsor variable and dividing the distribution into five equal parts. There are

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*These sponsors of educational models were observed in Spring 1973: Far West Laboratory for Educational Research and Development (5 sites), University of Arizona (6 sites), Bank Street College of Education (5 sites), University of Oregon (5 sites), University of Kansas (5 sites, High/Scope Educational Research Foundation (5 sites), and Education Development Center (5 sites). These sponsors were chosen for observation because they met the criterion of having five or more sites being implemented.

**A nonparametric scaling technique was used rather than a technique that employs the means and standard deviations of the Non-Follow Through classrooms because of the variety of distributions that were encountered

35 Non-Follow through first grades. Beginning with lowest score, the seventh score from the bottom is the first quintile cutpoint; the fourteenth score is the second quintile cutpoint; the twenty-first score is the third quintile cutpoint; and the twenty-eighth score is the fourth quintile cutpoint. Each Follow Through classroom falls within a quintile; e.g., a classroom with a score equal to or below the seventh Non-Follow Through classroom score is in the first quintile; while a classroom with a score above the twenty-eighth Non-Follow Through score is in the fifth quintile. In Figure 43 the cutpoints are shown for the implementation scores for the variable "Games, toys, play equipment present" for first grade Non-Follow Through classrooms.

Quintiles:	1st	2nd	3rd	4th	5th
	7 NFT Classroom Scores	7 NFT Classroom Scores	7 NFT Classroom Scores	7 Classroom Scores	7 Classroom Scores

3.5	4.2	5.1	6.3
Cutpoint 1	Cutpoint 2	Cutpoint 3	Cutpoint 4

FIGURE 43 GAMES, TOYS, PLAY EQUIPMENT PRESENT (Var. 25)--FIRST GRADE

A sponsor's implementation score on any variable will always be a score between 1 and 5. This represents the position of a Follow Through classroom mean relative to the distribution of Non-Follow Through means.

For each sponsor's classroom, an implementation score was computed for each of the sponsor's variables. These scores were displayed for each variable, in the manner illustrated in Table 130. A total implementation score for a classroom was also computed by dividing the sum of the variable implementation scores by the highest sum possible. The resulting proportion was then multiplied by 100 so that it could be expressed in percentage terms. To apply the method in an example, the highest possible sum (5) of implementation scores for a hypothetical

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in the Non-Follow Through classrooms. The distributions ranged from the familiar bell shape to a j-shaped curve to distributions with extreme outliers. A parametric approach which may be appropriate to one distribution may be inappropriate to another. The nonparametric procedures selected for use tend to be less sensitive to these differences in distribution than are the more conventional parametric procedures.

Table 130

WIDE VARIETY OF ACTIVITIES, OVER ONE DAY (Variable 83)

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
Berkeley, Calif.					4				1	3
Duluth, Minn.				3	1				1	3
Lebanon, N.H.					4					4
Salt Lake City, Utah					4			1	1	2
Tacoma, Wash.					4			2	1	1
Total Classrooms				3	17			3	4	13
Percent of classrooms				15%	85%			15%	20%	65%

classroom being rated on four variables would be 5 x 4 = 20. If a classroom had implementation scores of 3, 3, 4, and 5 on the individual implementation variables, then the total implementation score for the classroom would be (15/20)100 = 75%.

In order to assess the magnitude of the total implementation scores for Follow Through classrooms, a total implementation score was also computed for each Non-Follow Through classroom on each sponsor's set of implementation variables. The mean and standard deviation of the Non-Follow Through pooled classrooms are reported for each sponsor separately for first and third grades. One-tailed t-tests were computed to test for the significance of the differences between each Follow Through sponsor's classrooms and the Non-Follow Through classrooms.

2. Results of the Classroom Implementation Study*

Total implementation scores for each classroom for each sponsor are presented in Tables 131 through 137. The means and standard deviations are presented by grade level, based on the scores for all of a sponsor's classrooms in each site and also for pooled Non-Follow Through classrooms.

The Far West classrooms in both first and third grades are remarkably similar within sites and between sites on total implementation scores, with the greatest within-site deviation found in the third grade in Duluth (see Table 131). Although 12% of the children in Salt Lake City did not speak English as a first language, both grade levels have high implementation scores. Overall, the Far West classrooms at both first and third grades are significantly different from the Non-Follow Through classrooms when compared on Far West implementation variables.

There is a significant difference between the total implementation scores in the first and third grade of University of Arizona classrooms and the Non-Follow Through comparison classrooms (see Table 132). The results of an analysis of variance indicate that there is a greater difference among University of Arizona sites than there is within the sites. The greatest difference in the first grade is found between Lincoln, with a mean of 83, and Newark, with a mean of 55. While the first grade at Newark shows little deviation within the classrooms at the site, the total implementation scores for first grade are lower than that of the Non-Follow Through classrooms. Newark third grades also had low implementation scores. It must be noted that Newark had more families below poverty level than other sites and the sponsor reported some staffing problems. The other five University of Arizona sites (excepting Des Moines third grade) have implementation scores which are at least ten points higher than the Non-Follow Through scores.

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*Four dimensions of observational reliability were examined in this report; anomalies and completeness of data collection, day to day reliability, confusability of codes and observer reliability. On each dimension the data were found to be acceptably reliable.

Table 131

TOTAL SITE IMPLEMENTATION SCORES FOR FAR WEST MODEL

		First Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Berkeley	(EK)	72.6%	79.3%	75.6%	71.9%	74.8%	3.4
Duluth	(EK)	76.3	84.4	80.7	80.0	80.4	3.3
Lebanon	(EK)	81.5	75.6	84.4	80.7	80.6	3.7
Salt Lake City	(EK)	80.7	85.9	75.6	80.0	80.6	4.2
Tacoma	(EK)	78.5	71.9	78.5	71.1	75.0	4.1
Sponsor Scores (N = 20):						78.3%	4.4
NFT Scores (N=35):						60.3	6.3

$t = 11.28$

$p < .001$

$F = 2.65$

$p <$ NS

		Third Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Berkeley	(EK)	82.2%	70.4%	79.3%	71.9%	75.9%	5.7
Duluth	(EK)	74.1	61.5	80.0	71.1	71.7	7.7
Lebanon	(EK)	69.6	77.8	74.1	64.4	71.5	5.8
Salt Lake City	(EK)	84.4	89.6	76.3	85.2	83.9	5.6
Tacoma	(EK)	79.2	84.4	80.7	72.6	79.2	5.0
Sponsor Scores (N=20):						76.4%	7.2
NFT Scores (N=36):						59.0	9.4

$t = 7.18$

$p < .001$

$F = 3.07$

$p < .05$

Table 132

TOTAL SITE IMPLEMENTATION SCORES FOR UNIVERSITY OF ARIZONA MODEL

	First Grade					
	Classroom Scores				Site Scores	
Sites	1	2	3	4	$\bar{X}$	S.D.
Des Moines (EK)	79.0%	62.9%	69.5%	71.4%	70.7%	6.7
Fort Worth (E1)	85.7	78.1	70.5	75.2	77.4	6.4
LaFayette (E1)	79.0	71.4	87.6		79.4	8.1
Lakewood (EK)	78.1	74.3	76.2	79.0	76.9	2.1
Newark (EK)	57.1	54.0	56.2	54.3	55.4	1.5
Lincoln (EK)	89.5	88.6	74.3	81.0	83.3	7.1
Sponsor Scores (N=23):					73.6%	10.7
NFT Scores (N=35):					61.8	7.0

$t = 4.99$

$p < .001$

$F = 11.76$

$p < .001$

	Third Grade					
	Classroom Scores				Site Scores	
Sites	1	2	3	4	$\bar{X}$	S.D.
Des Moines (EK)	65.7%	52.4%	53.3%	75.2%	61.7%	10.9
Fort Worth (E1)	66.7	80.0	82.9	84.8	78.6	8.2
LaFayette (E1)	68.6	71.4	73.3	87.6	75.2	8.5
Lakewood (EK)	76.2	78.1	76.2	73.3	76.0	2.0
Newark (EK)	61.9	63.8	67.6	63.8	64.3	2.4
Lincoln (EK)	77.1	75.2	78.1	81.9	78.1	2.8
Sponsor Scores (N=24):					72.3%	9.1
NFT Scores (N=36):					60.7	9.3

$t = 4.77$

$p < .001$

$F = 4.75$

$p < .01$

The Bank Street first and third grade classrooms are similar in total implementation scores both within and among sites (see Table 133). The greatest deviation is found among third grade classrooms in Tuskegee (8.1) and among Fall River first grade classes (7.5). The classrooms in Tuskegee are scattered over a large county area and consistency among classroom processes may be hard to obtain; however, first grades limited to one school had less variation. In Fall River, which has a large Portuguese population, 34% of the children do not speak English as a first language; however, there is a large standard deviation between classroom means (23). Some of the classrooms may have many Portuguese-speaking children while other classrooms may have few such children, and such differences may affect implementation if the teacher has difficulty in understanding the children or making herself understood. As can be seen on Table 127, three out of the four first grade classrooms in Fall River have implementation scores considerably higher than Non-Follow Through. Whether or not the classroom with a low implementation score also has more children who do not use English as a first language has not been investigated. The mean of the Bank Street Implementation scores is significantly higher than the Non-Follow Through score. Only Philadelphia third grades have a mean score close to the Non-Follow Through mean score. 1972-1973 was a difficult year for sponsors to work in Philadelphia due to two major teacher strikes.

As the t test on Table 134 indicates, overall the University of Oregon's classrooms are significantly different from the Non-Follow Through classrooms. No first grade classrooms and only one third grade Oregon classroom score is below the mean of Non-Follow Through.

The analysis of variance F tests which are presented on Table 134 indicate that the among-site variance is greater than the within-site variance in the first grade. The greatest difference is seen between New York and Racine. In the third grade the variance is as great within the sites as among sites. The difference in New York is particularly great where one third grade classroom has a low score of 57.6 and another has a high score of 81.2. A possible explanation may be that children in University of Oregon's New York third grades have had fewer months in Follow Through and the attrition rate is greater than for other sites. The standard deviation for third grades in St. Louis and Racine is also high. The standard deviation for the first grades at these same sites is considerably less. One possible explanation for the difference among third grade classrooms might be that in the spring of the year when observations are conducted, teachers might be preparing the children for the fourth grade Non-Follow Through classrooms and they might not be adhering so strictly to University of Oregon's stated program. Note, this rationale could also apply to other sponsors, as well, since there is a slight trend toward lower implementation scores, and more deviation among them, in the third grade for several other sponsors.

The t test presented on Table 135 indicates that the University of Kansas classrooms differ from the Non-Follow Through classrooms. Only one first grade Kansas City classroom's implementation score (64.7) is

Table 133

TOTAL SITE IMPLEMENTATION SCORES FOR BANK STREET MODEL

		First Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Brattleboro	(EK)	64.4%	74.1%	68.9%	%	69.1%	4.8
Fall River	(EK)	80.7	75.6	71.1	63.0	72.6	7.5
NYC P.S. 243K	(EK)	78.5	74.8	77.0	67.4	74.4	4.9
Philadelphia II	(EK)	77.8	82.6	78.5	77.0	79.0	2.5
Tuskegee	(E1)	80.0	78.5	75.6	76.3	77.6	2.0
Sponsor Scores (N=19):						74.8%	5.5
NFT Scores (N=35):						62.7	6.2

$t = 7.12$

$p < .001$

$F = 2.37$

$p <$ NS

		Third Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Brattleboro	(EK)	75.6%	74.8%	71.1%	%	73.8%	2.4
Fall River	(EK)	61.5	68.9	68.9	71.1	67.6	4.2
NYC P.S. 243K	(EK)	62.2	68.9	77.8	69.6	69.6	6.4
Philadelphia II	(EK)	63.0	65.2	60.0	70.4	64.6	4.4
Tuskegee	(E1)	70.4	81.5	77.0	63.0	73.0	8.1
Sponsor Scores (N=19):						69.5%	6.0
NFT Scores (N=36):						62.4	8.6

$t = 3.20$

$p < .001$

$F = 1.71$

$p <$ NS

Table 134

TOTAL SITE IMPLEMENTATION SCORES FOR UNIVERSITY OF OREGON MODEL

		First Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
E. St. Louis	(EK)	76.2%	62.5%	76.2%	75.0%	72.5%	6.7
NYC P.S. 137K	(EK)	88.7	90.0	91.2		90.0	1.3
Racine	(EK)	72.5	72.5	71.2	71.2	71.9	.7
Tupelo	(E1)	80.0	86.2	87.5	87.5	85.3	3.6
Providence	(EK)	72.5	77.5	72.5	73.7	74.1	2.4
Sponsor Scores (N=19):						78.2%	8.1
NFT Scores (N=35):						61.0	10.7

$t = 6.11$

$p < .001$

$F = 17.61$

$p < .001$

		Third Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
E. St. Louis	(EK)	76.5%	62.4%	78.8%	87.1%	76.2%	10.3
NYC P.S. 137K	(EK)	68.2	81.2	57.6		69.0	11.8
Racine	(EK)	71.8	62.4	84.7	85.9	76.2	11.2
Tupelo	(E1)	87.1	80.0	90.6	74.1	82.9	7.3
Providence	(EK)	75.0	82.4	78.8	69.4	76.4	5.5
Sponsor Scores (N=19):						76.5%	9.3
NFT Scores (N=36):						60.4	10.5

$t = 5.62$

$p < .001$

$F = .91$

p < NS

Table 135

TOTAL SITE IMPLEMENTATION SCORES FOR UNIVERSITY OF KANSAS MODEL

Sites	First Grade					
	Classroom Scores				Site Scores	
	1	2	3	4	$\bar{X}$	S.D.
NYC P.S. 77X (EK)	75.0%	81.3%	%	%	78.1%	4.4
Philadelphia VI (EK)	78.8	90.6	82.4	88.2	85.0	5.4
Portageville (EK)	96.5	91.8	90.6	88.2	91.8	3.5
Kansas City (EK)	82.4	74.1	83.5	64.7	76.2	8.7
Louisville (EK)	85.9	90.6	92.9	85.9	88.8	3.5
Sponsor Scores (N=18):					84.6%	7.9
NFT Scores (N=35):					62.4	8.5
					$t = 9.22$	
					$p < .001$	
					$F = 5.14$	
					$p < .01$	

Sites	Third Grade					
	Classroom Scores				Site Scores	
	1	2	3	4	$\bar{X}$	S.D.
NYC P.S. 77X (EK)	71.2%	85.0%	%	%	78.1%	9.7
Philadelphia VI (EK)	76.5	82.4	75.3	84.7	79.7	4.5
Portageville (EK)	89.4	74.1	78.8		80.8	7.8
Kansas City (EK)	88.2	88.2	84.7	84.7	86.5	2.0
Louisville (EK)	88.2	91.8	87.1	85.9	88.2	2.5
Sponsor Scores (N=17):					83.3%	6.0
NFT Scores (N=36):					61.3	9.3
					$t = 8.89$	
					$p < .001$	
					$F = 2.53$	
					$p <$ NS	

close to the Non-Follow Through score (62.4). All other University of Kansas classroom scores are in the 70s, 80s, or 90s. The analysis of variance indicates that in the first grade there is a greater difference among site implementation mean scores than there is within sites. Portageville has the highest mean score (92) and Kansas City the lowest (76). Kansas City also has the greatest within-site variance (8.7). The one classroom mentioned above with the 62.4 score seems to account for this variance. In the third grade the greatest variance is found between the two classrooms in New York. The least variation and the highest implementation scores for third grades are found within Kansas City and Louisville.

The t test presented on Table 136 indicates that overall the High/Scope implementation mean score differs from the Non-Follow Through mean score. Only the classrooms in the New York third grades have implementation scores similar to those in Non-Follow Through. New York also has the lowest first grade implementation scores. The primary difference between New York and the other High/Scope sites is geographic in nature; New York City is the only large eastern urban center included in the High/Scope sample projects. There is little variability within or among site mean scores. In no case is the within-site variance greater than 3.8 (Greenwood first grades) and in Greeley the variance among first grades is only .8. This is remarkable since in Greeley 27% of the children speak English as a second language and the attrition rate is high. These figures reflect a migrant, Spanish-speaking population, and indicate that the teachers have been able to implement the model in spite of the difficulties which might arise when children speak languages other than the language used in school. Greenwood, which had a considerably lower per capita income than other High/Scope sites, was also well implemented.

The t tests presented on Table 137 indicate that the EDC classroom means are different statistically from the Non-Follow Through classrooms in both the first and third grades. In the third grade the overlap of EDC classroom scores with Non-Follow Through is not so great. In first grade, two classrooms have scores lower than the Non-Follow Through mean score, and in third grade only one EDC classroom has a score lower than the Non-Follow Through mean score.

The analysis of variance shows that the variability among sites is statistically significant relative to the within-site variance in both first and third grades. Burlington has a score of 90 in the first grade and Rosebud a score of 82 in the third grade. Philadelphia has the lowest scores, 65 and 68, and contributes most of the variance for both first and third grades. Not only are Philadelphia implementation scores lower than those of other sites, their within-site variation is greater. Here again, the low implementation scores and variability might be explained by two prolonged teacher strikes in Philadelphia. It is possible that when tension is high, teachers may become more structured and adhere less to the theory of the model. It must be noted that all other sites have high implementation scores and low within-site variance.

Table 136

TOTAL SITE IMPLEMENTATION SCORES FOR HIGH/SCOPE MODEL

		First Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Greenwood	(E1)	71.0%	67.6%	70.3%	76.6%	71.4%	3.8
Ft. Walton Beach	(E1)	77.9	73.8	79.3	75.9	76.7	2.4
NYC P.S. 92M	(EK)	66.2	71.7	71.0		69.7	3.0
Greeley	(EK)	82.8	81.4	82.8		82.3	.8
Denver	(EK)	86.9	80.7	80.7	82.8	82.8	2.9
Sponsor Scores (N=18):						76.6%	6.0
NFT Scores (N=35):						63.7	5.8

$t = 7.58$

$p > .001$

$F = 15.59$

$p > .001$

		Third Grade					
		Classroom Scores				Site Scores	
Sites		1	2	3	4	$\bar{X}$	S.D.
Greenwood	(E1)	70.3%	73.1%	75.2%	74.5%	73.3%	2.1
Ft. Walton Beach	(E1)	83.4	83.4	80.7	78.6	81.6	2.3
NYC P.S. 92M	(EK)	66.9	62.1	64.8	64.8	64.7	2.0
Greeley	(EK)	80.0	80.0	86.2		82.1	3.6
Denver	(EK)	73.1	71.7	78.6	76.6	75.0	3.2
Sponsor Scores (N=19):						75.0%	6.9
NFT Scores (N=36):						63.5	6.8

$t = 5.93$

$p > .001$

$F = 27.34$

$p > .001$

Table 137

TOTAL SITE IMPLEMENTATION SCORES FOR EDC MODEL

Sites		First Grade Classroom Scores 1	2	3	4	Site Scores $\bar{X}$	S.D.
Burlington	(EK)	91.0%	91.0%	86.0%	93.0%	90.2%	3.0
Philadelphia IV	(EK)	72.0	80.0	58.0	48.0	64.5	14.3
Paterson	(EK)	70.0	79.0	79.0	73.0	75.2	4.5
Rosebud	(EK)	72.0	68.0	71.0		70.3	2.1
Smithfield	(E1)	85.0	76.0	86.0	83.0	82.5	4.5
Sponsor Scores (N=19):						76.9%	11.5
NFT Scores (N=35):						61.2	9.6

t = 5.35

p > .001

F = 7.26

p > .01

Sites		Third Grade Classroom Scores 1	2	3	4	Site Scores $\bar{X}$	S.D.
Burlington	(EK)	85.5%	81.8%	79.1%	75.5%	80.5%	4.2
Philadelphia IV	(EK)	75.5	64.5	73.6	59.1	68.2	7.7
Paterson	(EK)	67.3	69.1	77.3	73.6	71.8	4.5
Rosebud	(EK)	85.5	80.0	79.1		81.5	3.4
Smithfield	(E1)	76.4	79.1			77.7	1.9
Sponsor Scores (N=17):						75.4%	7.1
NFT Scores (N=36):						60.7	10.6

t = 5.18

p > .001

F = 4.54

p > .05

B. Sponsor Differences

Differences among sponsors were examined through discriminant function analysis. The discriminant functions on which sponsors differed were dominated by one or two very specific classroom process variables, e.g., "Large group with aide/Math" or "Adult reinforcement with token, academic." Three groups of classrooms were usually found in these analyses. Those classrooms using the University of Kansas model formed a cluster, those using the University of Oregon model formed another cluster, and classrooms of the remaining five sponsors formed several different clusters.

In an effort to see more clearly how the five sponsors are distinguished from each other, a separate analysis was conducted without the data from University of Kansas and University of Oregon. In this analysis, the University of Arizona was distinguished from the remaining four sponsors on the basis of "Child's extended response to questions" and "Adult communication or attention focus, small group." High/Scope was differentiated from the other four on the basis of variables indicating a high level of verbal interaction between adults and children and, as would be expected from their Piagetian model, "Child self-instruction, objects." The third discriminant function distinguished Far West Lab from EDC and Bank Street, in that Far West had a higher mean score for "All adult praise to children," and less academic instruction than did the other two sponsors.

An analysis was also made to see if classrooms could be classified by sponsor. Based on Classroom Observation data, out of a total of 524 classifications using CCL variables and FMO variables, 410 were correct. University of Kansas and University of Oregon classrooms were rarely misclassified as belonging to another sponsor. The classrooms of the remaining five sponsors are occasionally confused with each other but only rarely with the University of Oregon or University of Kansas models. Three High/Scope classrooms were classified as belonging to University of Oregon and two were classified as University of Kansas classrooms. In the majority of cases, however, classrooms affiliated with a particular sponsor were correctly identified with that sponsor and we conclude that for the most part, sponsors can be distinguished by the observation variables used in this analysis.

In order to learn more about the type of processes used in the Non-Follow Through classrooms, their scores on the critical variables were also assessed to see how they would be classified in the sponsors' groups. Few Non-Follow Through classrooms were classified as University of Kansas classrooms in either grade level. They were most often classified as EDC in the first grade and as University of Oregon in the third grade, on the grouping and activity variables. On the interaction variables, the Non-Follow Through classrooms were distributed rather evenly across Far West, University of Arizona, Bank Street, University of Oregon, High/Scope, and EDC.

C. Teacher Reports

In the study of implementation it is important to try to understand what methods or strategies sponsors employed to bring about the changes in teacher behavior and which teacher characteristics are related to classroom implementation. The evaluation of classroom conformity to sponsor goals, described above, leaves no doubt that implementation of the Follow Through models has taken place in many diverse sites.

An effort was made to determine (1) which elements in the sponsor's inservice teacher training program were effective in the implementation process, and (2) which teacher characteristics might be related to successful implementation. Items from the Follow Through Teacher Questionnaire regarding the sponsor's teacher training program, teaching experience, education, satisfaction with the sponsor's model, and a report of classroom structure were analyzed. Unfortunately, the correlations from these analyses were very low and the findings do not warrant a discussion in this report.* Only an analysis of classroom structure reported by teachers on the questionnaire is analyzed in their report.

Structure of Classroom--Teachers' descriptions of the extent of structure in their classrooms were quite distinct. A low score on the scale indicated greater structure, while a high score indicated flexibility. For each sponsor, teacher reports of classroom practices conformed closely--to each other and to the requirements of the sponsor's model.

The influence of the sponsors is apparent because (1) there was little deviation among the teachers' reports, and (2) the more structured models (University of Oregon and University of Kansas) were lower on the scale and the more flexible models were higher on the scale. Non-Follow Through separates these two groups, but does not overlap with them.

D. Classroom Instructional Processes and Child Outcomes

Using 105 first grade and 58 third grade Follow Through and Non-Follow Through classrooms for whom baseline test data were available, partial correlations were computed using classroom means for instructional processes on the following: selected child behaviors, absence rate, and test scores.

In both first and third grades, the tendency is for higher reading and math scores to be associated with variables which describe the more-structured, teacher-initiated classrooms.

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*It is the opinion of the authors that a more useful study of teacher training would require specific information regarding training procedures used by the sponsors beyond that reported in the Teacher Questionnaire. The training procedures of sponsors may be obtained from the individual sponsors.

There is a significant relationship between high test scores and small group instruction for first grade, but large group instruction for third grade.

A significant correlation was found between test scores and stimulus-response-feedback interactions, where the teacher provides a bit of information and asks a question about the information. The child responds, and the teacher immediately lets the child know whether the response is right or wrong. If he is wrong, the child is guided to the correct answer (positive corrective feedback). If he is correct, he receives praise, a token, or some form of acknowledgment. This positive reinforcement is significantly related to the test scores.

Self-instruction and task persistence are correlated with reading and math achievement. Also, in classes where social studies are taught, there is a positive relationship with reading scores. Obviously, reading skills are used in social studies projects, but it is of interest to note that occurrence of the activity is related to reading scores. In addition, the use of instructional materials such as programmed material, Cuisenaire rods, or Montessori materials are positively correlated with math scores.

Variables describing the time per child spent in reading or math activity (either formal or informal) were highly correlated with math and reading achievement. A study of entering ability indicated that amount of time spent in math was more closely related to achievement in third grade classrooms where the entering ability had been lower than in classrooms where the entering ability had been higher. The study of the relationship of praise to achievement in math indicated similar findings. This type of interaction treatment study could be useful in planning educational programs to enhance the learning of children with differing abilities and different age levels. University of Oregon and University of Kansas, both structured models, have the highest scores of all sponsors in first grade reading, and University of Kansas has the highest score in first grade math. In third grade, the University of Oregon has the highest residual gain score of all sponsors in both reading and math.

In general, a low absence rate, high independence, and high scores on Raven's Coloured Progressive Matrices, a test of non-verbal perceptual problem-solving, tend to be associated with the more flexible classroom where a wide variety of materials are used, many different activities occur, and children are allowed to select their own groups and seating part of the time. In these more flexible classrooms, adults interact with children on a one-to-one basis, more open-ended questions are asked, and children show more verbal initiative. Far West, University of Arizona, Bank Street, High/Scope, and Educational Development Committee, use these processes. For the most part, children in these classrooms have higher scores on the Raven's, lower absence rates, and show more independence than do children in either University of Kansas or University of Oregon, which are classified as structured models.

The Intellectual Achievement Responsibility Success Scale shows a positive correlation with variables describing the more open classrooms. Our results indicate that children from the more flexible classrooms take responsibility for their own success, but not for their failure. Children in classrooms using the more flexible models of University of Arizona and EDC had higher adjusted scores than children in classrooms of other sponsors. Children from the more highly structured classrooms take responsibility for their own failure, but attribute their success to their teacher's competence or other forces outside themselves. University of Kansas and University of Oregon sponsored the more structured models, and children in classrooms using those models have higher adjusted scores than children in other sponsors. EDC was the only sponsor to have positive residual gain scores on both scales.

E. Outcomes of Regression Analysis

Stepwise regressions were computed to assess the amount of variability for each outcome measurement that is explained by the independent variables.

The WRAT was employed as a measure of entering ability and in each case the regression equation was constructed by entering the WRAT scores first and then determining the amount of variance accounted for by process variables beyond that accounted for by the WRAT. The proportion of the variability among class averages of the child behavior variables; i.e., independence, task persistence, and absence rate that is explained by baseline WRAT score is essentially zero while the process variables explained from 28% to 67% of the variability for these measures. The WRAT explains from 17% to 50% of the variability of the MAT first and third grade math and reading scores. In our study the WRAT is more predictive of reading scores than of math scores. Interestingly, a set of ten process variables in the first grade and eight in the third grade offer better prediction of the math scores than does the WRAT. Process variables also account for a considerable amount of the variance in reading (23% in first grade and 37% in third grade). For the Raven's, approximately the same amount of variability is accounted for by the WRAT (.41) as by the process variables (.45). Very little of the IAR success and failure scale is predicted by the WRAT; however, four process variables accounted for 39% of the variability on the Success scale and 11 process variables accounted for 79% of the variability on the Failure scale. Collectively, these results provide compelling evidence that what occurs in classrooms does affect child outcome.

An attempt was made to replicate a regression model designed by William Cooley and based upon the educational theory of the University of Pittsburgh's IPPI. This analysis was carried out by John Emrick of SRI on the 1972 data. The first study was based upon 30 first grades representing five sponsors in five southern sites, while the second study had 112 first grade classes representing seven sponsors in 25 sites in many geographical locations.

In spite of the fact that a different baseline test battery was used in the two studies and in spite of the difference in time between pretest and posttests, the variance accounted for by entering ability was similar for both studies. However, the instructional process accounted for 2.6 times as much of the variance in outcome measures in the 1972 study as in the 1973 study. Shared or joint variance of entering ability and instructional processes was a negative 10% for the 1972 study and a positive 1% of the variance in the 1973 study. The instructional process variable "opportunity" uniquely accounted for 17% of the criterion variance in the 1972 study and for none of the variance in the 1973 study. The findings of the large percent of variance accounted for by the process variables specified by Cooley for the first study are not replicated in the second study. However, the methodology is useful and a set of variables selected on the basis of the findings from the stepwise regression might predict more of the outcome scores.

F. Summary

Two issues of educational importance have been addressed in this report: (1) Have a variety of innovational educational programs (Planned Variation) been implemented in diverse sites across the country? (2) If these educational models have been installed, how have they affected the growth and development of children?

The sections on sponsor implementation provide convincing evidence that the great majority of teachers in the first and third grade samples in approximately five different sites per sponsor are conforming to sponsor specifications. In addition, the sponsors have been distinguished from each other in important classroom practices. The Non-Follow Through pooled sample proved to be an equally good comparison for all sponsors. The average implementation score for Non-Follow Through, regardless of the set of critical sponsor variables used, varied only from 59 to 63. The implementation score of each sponsor differed statistically from Non-Follow Through.

The effect of classroom processes upon children was examined through partial correlations and stepwise regressions. Since the classroom processes predicted the outcome scores as well as or better than did the entering baseline test scores, we conclude that what teachers do does make a difference. In the more academically oriented classrooms which use a high rate of drill, practice, and praise and have the children more frequently engaged in reading or math activities, the residual gain scores on reading and math are higher. These children also take more responsibility for their failure as tested on the Intellectual Achievement Responsibility Scale. These findings are supported by the fact that the sponsors that use these processes in their classrooms (University of Oregon and University of Kansas) also have higher scores on these tests.*

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*With one exception, EDC, which is described as a more open model, had a positive adjusted score in first grade math and the third grade IAR Failure scale.

The more open interdisciplinary classrooms, which have a wide variety of activities occurring, provide a wide variety of materials, allow children to select their own groups part of the time, and allow children to engage in activities without adults, also have higher scores on the Raven's perceptual problem solving test; students are absent less often and take more responsibility for their success as measured on the Intellectual Achievement Responsibility Scale. The highest scores obtained on these tests were achieved by sponsors who specified these process variables as important to their programs.

The educational practices employed here seem to be resulting in predictable and desired outcomes for the children. On the basis of our findings, we conclude that the Follow Through program of planned variation is being implemented, and that the seven sponsored models considered in this report are each working to the advantage of children--not by chance but by careful design.

BIBLIOGRAPHY

Anderson, T. W., An Introduction to Multivariate Statistical Analysis (Wiley and Sons, New York, 1958).

Baker, J. Philip, Phillip Giesen, and Charles Norwood, (unpublished) SRI, Menlo Park, California.

Beaton, A. E., Commonality, Mimeograph, Educational Testing Service (March 1973).

Brophe, Jere, and Carolyn Evertson, "Process-Produce Correlation in the Texas Teacher Effectiveness Study," Research and Development Center in Teacher Education, University of Texas (June 1974).

Carroll, J., "A Model of School Learning," Teacher College Records, 64, 723-733 (1963).

Charter, W. W., Jr. and John E. Jones, "On the Risk of Appraising Non-Events in Program Evaluation," Educational Researcher, Vol. 2, No. 11, pp. 5-7 (November 1973).

Cooley, W. W. and P. R. Lohnes, Multivariate Procedures for the Behavioral Sciences (John Wiley and Sons, New York, 1962).

Cooley, W. W. and P. R. Lohnes, Evaluate Inquiry in Education (in press, 1974).

Coopersmith, Stanley, "Coopersmith Self-Esteem Inventory" in The Antecedents of Self-Esteem (San Francisco: W. H. Freeman and Co., 1967).

Crandall, Virginia C., Walter Katkovsky, and Vaughn J. Crandall, "Children's Beliefs in Their Own Control of Reinforcements in Intellectual-Academic Achievement Situations," Child Development, Vol. 36, pp. 91-106 (1965).

Cronbach, Lee J. et al., The Dependability of Behavioral Measurements: Theory of Generalizability for Scores and Profiles (John Wiley and Sons, Inc., New York, 1972).

Deutsch, M., The Disadvantaged Child, New York: Basic Books (1967).

Dixon, W. J. (ed.), BMD Biomedical Computer Programs (University of California Press, Berkeley, 1973).

Durost, W. N. et al., Metropolitan Achievement Tests (MAT) Form F (New York: Harcourt Brace Jovanovich, In., 1970).

Egbert, Robert L., "Planned Variation in Follow Through," paper prepared for the Brookings Institution Conference on Social Experimentation, Washington, D.C. (April 1973).

Emrick, John A., "Instructional Determinants of Classroom Learning," SRI, Menlo Park, CA (unpublished, January 1974).

Gagne, R. and E. C. Smith, Jr., "A Study of the Effects of Verbalization on Problem Solving," Journal of Experimental Psychology (1962, 1963).

Goodlad, John C., M. F. Klein, et al., Behind the Classroom Door (Charles A. Jones Publishing Co., Worthington, Ohio, 1970).

Harris, A. J., Charles Morrison, B. L. Serwer, L. Gold, "A Continuation of the Kraft Project: Comparing Reading Approaches with Disadvantaged Urban Negro Children in the Primary Grades," City U. of N.Y., U.S. OE No. 5-0570-2-12-1, ERICEd 010297 (1968).

Holt, John, How Children Fail (Pitman Publishing Corp., New York, 1964).

Jastak, J. R., and S. R. Jastak, WRAT Manual (Wilmington, Delaware: Guidance Associates, 1965).

Jencks, C., Inequality, A Reassessment of the Effect of Family and Schooling in America (Basic Books, Inc., New York, 1972).

Jensen, A. R., "How Much Can We Boost IQ and Scholastic Achievement." Harvard Educational Review 39: 1-123 (1969).

Lucas, Carol, "Issues of Implementation in Head Start Planned Variation," paper prepared for a working conference sponsored by the Brookings Institution Panel on Social Experimentation, Washington, D.C., April 1973.

Maccoby, Eleanor, and Miriam Zellner, Experiments in Primary Education - Aspects of Project Follow Through, Harcourt Brace Jovanovich, Inc. (1970).

Mason, W. S., "Problems of Measurement and the NIE Program," NIE, mimeo (August 29, 1973).

Mayeske, G. W., et al., A Study of Our Nation's Schools, a working paper (U.S. Government Printing Office, Washington, D.C., 1969).

McNemar, Q., Psychological Statistics, 4th ed. (John Wiley and Sons, New York, 1969).

Medley, D. M., and H. E. Mitzel, "Measuring Classroom Behavior by Systematic Observation," Handbook of Research on Teaching, N. L. Gage, Ed. (Rand McNally and Company, Chicago, 1963).

Mosteller, Frederick, and Daniel Moynihan (ed.), On Equality of Educational Opportunity (Vintage Books, New York, 1972).

Psychology, Mussan & Rosensweig, Eds. (Annual Review, Inc., Palo Alto, California, 1972).

Rao, C. R., Linear Statistical Inference and Its Applications (John Wiley and Sons, New York, 1965).

Raven, J. C., "Guide to Using the Coloured Progressive Matrices," (H. K. Lewis & Co., Ltd., London, 1965).

Raven, J. C., Raven's Coloured Progressive Matrices (New York: Psychological Corporation, 1956, 1962).

Semmel, Melvyn (personal communication, 1973).

Smith, M. S., "Some Short Term Effects of Project Head Start: A Preliminary Report on the Second Year of Planned Variation, 1970-71" (DRAFT), Huron Institute, Cambridge, Massachusetts (1973).

Soar, Robert, Follow Through Process Evaluation, 1970-1971, Institute for Human Development, University of Florida, Gainesville, Florida (June 1973).

Stallings, Jane, Follow Through Program Classroom Observation Evaluation, 1971-72, SRI Project URU-7370, Stanford Research Institute, Menlo Park, California (August 1973).

Stallings, Jane, Philip Baker, Gerald Steinmetz, "What Happens in the Follow Through Program: Implications for Child Growth and Development," paper prepared for the American Psychological Association Convention, Honolulu, Hawaii (September 1972).

Stearns, Marian S., Kathryn A. Preecs, and Gerald T. Steinmetz, "Classroom Observation Study of Implementation in Head Start Planned Variation, 1970-71," Stanford Research Institute, Menlo Park, California (1973).

U.S. Department of Commerce, Bureau of the Census, Census of Population: 1970 General Population Characteristics, Final Report PC (1)-B1, U.S. Summary.

Weber, Evelyn, Early Childhood Education: Perspectives on Change, Charles A. Jones Publishing Co., Worthington, Ohio (1970).

Weikart, David P., and B. A. Banet, "Planned Variation: From the Perspective of a Model Sponsor," paper prepared for a working conference sponsored by the Brookings Institution Panel on Social Experimentation, Washington, D.C. (April 1973).

Wiley, David E., Another Hour and the Day's Quantity of Schooling, A Potent Path for Policy (University of Chicago, 1973).

Wolff, Max and Annie Stein, "Study I: Six Months Later, A Comparison of Children Who Had Head Start Summer 1965, with Their Classmates in Kindergarten (A Case Study of Kindergartens in Four Public Elementary Schools, New York City)," 1966.

Appendix A

FOLLOW THROUGH PROGRAM SPONSORS

Appendix A

FOLLOW THROUGH PROGRAM SPONSORS

University-Based Program Sponsors

- Bank Street College of Education Approach

  Bank Street College of Education
  610 W. 112th Street
  New York, New York 10025

  Director: Elizabeth C. Gilkeson

- Behavior Analysis Approach

  Support and Development Center for Follow Through
  Department of Human Development
  University of Kansas
  Lawrence, Kansas 66044

  Director: Don Bushell, Jr.

- Cultural Linguistic Follow Through Approach

  Center for Inner City Studies
  Northeastern Illinois University
  700 E. Oakwood Boulevard
  Chicago, Illinois 60653

  Directors: Nancy L. Arnez and Clara Holton

- Culturally Democratic Learning Environments

  University of California, Riverside
  2316 Library South
  Riverside, California 92502

  Director: Manuel Ramirez III

- Florida Parent Education Model

  University of Florida
  513 Weil Hall
  Gainesville, Florida 32601

  Director: Ira J. Gordon

- Individualized Early Learning Program

  University of Pittsburgh
  Learning Research and Development Center
  Project Follow Through
  G6 Social Science Building
  Pittsburgh, Pennsylvania 15213

  Directors: Lauren Resnick and Warren Shepler

- Mathemagnetic Activities Program

  University of Georgia Follow Through
  Psychology Department
  Athens, Georgia 30601

  Director: C. D. Smock

- The New School Approach to Follow Through

  University of North Dakota
  Center for Teaching and Learning
  Grand Forks, North Dakota 58201

  Director: Vito Perrone

- Parent Supported Application of the Behavior Oriented Prescriptive Teaching Approach

  Georgia State University
  Department of Early Childhood Education
  33 Gilmer Street
  Atlanta, Georgia 30303

  Director: Walter L. Hodges

- Tucson Early Education Model

  Arizona Center for Early Childhood Education
  1515 E. First Street
  University of Arizona
  Tucson, Arizona 85719

  Director: Joseph M. Fillerup

- University of Oregon Engelmann-Becker Model

  University of Oregon
  College of Education
  Follow Through Project
  Eugene, Oregon 97403

  Directors: Siegfried Engelmann
  and Wesley C. Becker

Regional Laboratories or Private Institutes

- Cognitively Oriented Curriculum Model

  High/Scope Educational Research Foundation
  125 North Huron Street
  Ypsilanti, Michigan 48197

  Director: David P. Weikart

- EDC Open Education Follow Through Program

  Education Development Center
  55 Chapel Street
  Newton, Massachusetts 02160

  Director: George E. Hein

- Hampton Institute Non-Graded Follow Through Model

  Hampton Institute
  Hampton, Virginia 23368

  Director: Mary T. Christian

- Interdependent Learning Model

  Follow Through
  1700 Stewart Avenue S.W.
  Atlanta, Georgia 30315

  Director: Frances Cox

  Follow Through
  Public School 76M
  220 West 121st Street
  New York, New York 10027

  Director: Altharanzo L. Thompson

- Language Development (Bilingual) Education Approach

  Southwest Educational Development Laboratory (SEDL)
  Follow Through Model
  800 Brazos Street
  Austin, Texas 78701

  Director: Don H. Williams

- Responsive Educational Program

  Far West Laboratory for Educational Research and Development
  1 Garden Circle
  Hotel Claremont
  Berkeley, California 94705

  Director: Denis Thoms

- Role-Trade Model

  Western Behavioral Sciences Institute
  1150 Silverado
  La Jolla, California 92037

  Director: Stanley Crockett

Local Community Program Sponsors

- AFRAM Parent Implementation Approach

  Afram Associates, Inc.
  68-72 E. 131st Street
  Harlem, New York 10037

  Director: Preston Wilcox

- California Process Model

  California State Department of Education
  Division of Compensatory Education
  Bureau of Program Development
  721 Capitol Mall
  Sacramento, California 95814

  Director: James Jordan

- Home-School Partnership: A Motivational Approach

  Clark College
  240 Chestnut Street, S.W.
  Atlanta, Georgia 30314

  Director: Edward E. Johnson

Classroom Observation Sample, Spring 1973

Sponsor and Sites	Number of Follow Through Classes Observed	
	First Grade	Third Grade
Far West Laboratory for Educational R&D		
0201 Berkeley, Calif.	4	4
0204 Duluth, Minn.	4	4
0207 Lebanon, N.H.	4	4
0209 Salt Lake City, Utah	4	4
0213 Tacoma, Wash.	4	4
University of Arizona		
0305 Des Moines, Iowa	4	4
0307 Fort Worth, Texas	4	4
0308 LaFayette, Ga.	3	4
0309 Lakewood, N.J.	4	4
0311 Newark, N.J.	4	4
0316 Lincoln, Nebraska	4	4
Bank Street College		
0502 Brattleboro, Vermont	3	3
0504 Fall River, Mass.	4	4
0506 New York City, P.S. 243K	4	4
0508 Philadelphia II, Pa.	4	4
0510 Tuskegee, Ala.	4	4
University of Oregon		
0703 E. St. Louis, Ill.	4	4
0707 New York City, P.S. 137K	3	3
0708 Racine, Wisc.	4	4
0711 Tupelo, Miss.	4	4
0719 Providence, R.I.	4	4
University of Kansas		
0801 New York City, P.S. 77X	2	2
0803 Philadelphia VI, Pa.	4	4
0804 Portageville, Mo.	4	3
0806 Kansas City, Mo.	4	4
0807 Louisville, Ky.	4	4
High/Scope Educational Research Foundation		
0901 Greenwood, Miss.	4	4
0902 Ft. Walton Beach, Fla.	4	4
0903 New York City, P.S. 92M	3	4
0906 Greeley, Colo.	3	3
0907 Denver, Colo.	4	4
Education Development Center		
1101 Burlington, Vermont	4	4
1103 Philadelphia IV, Pa.	4	4
1106 Paterson, N.J.	4	4
1107 Rosebud, Texas	3	3
1108 Smithfield, N.C.	4	2
Total	136	135

Symbols for Region and Metropolitan States

Within Standard Metropolitan Statistical Area:

1	Big City	200,000
2	Medium City	50,000-200,000
3	Small City	10,000-50,000
4	Town	2,500-10,000

Not Within Standard Metropolitan Statistical Area:

5	Small City	10,000-50,000
6	Town	2,500-10,000
7	Rural	2,500

Regions

NE = New England
MA = Middle Atlantic
ENC = East North Central
WNC = West North Central
SA = South Atlantic
ESC = East South Central
WSC = West South Central
Mt. = Mountain
Pac. = Pacific

Appendix B

THE EFFECT OF CHILDREN CHARACTERISTICS ON CONTROL SYSTEMS AND ON THE DISPLAY OF EMOTIONS BY ADULTS

2. Results for Pooled Follow Through and Pooled Non-Follow Through

a. Percent of Males in the Classrooms--Correlations

The results presented in Table B-1 indicate that a preponderance of boys in a classroom has little effect upon the adult's classroom control or display of happiness or anger. Only one correlation out of 26 is significant (p < 0.5) for the pooled Follow Through classrooms (at this level, the correlation could have occurred by chance). Two of the 26 correlations reached significance in the Non-Follow Through classrooms. The first correlation indicates that in classrooms where there are more boys, the adults show less positive affect; in fact, they display less evidence of any type of emotion (Variables 423a, 430a) that can be recorded on the SRI observation instrument.

b. Percent of Children with Preschool Experience--Correlations

In this analysis, the classroom average in months of preschool experience was correlated with each of the adult process variables. Results are displayed in Table B-1. Whether or not a child has preschool experience does not appear to influence the way in which Follow Through teachers treat the child. In Non-Follow Through classrooms, however, the teachers were more likely to give corrective feedback to children when there was a higher percentage of children with preschool experience (Variable 405a) and the feedback was likely to be for behavior (Variable 448a). In addition, Non-Follow Through teachers with a higher percentage of children with preschool experience were less likely to demonstrate either positive or negative feelings (Variables 423a, 430a).

c. Mean Scores on Baseline Wide Range Achievement Test (WRAT)--Correlations

In this analysis, the classroom average on the entering level WRAT was correlated with each of the adult process variables also. Results are displayed in Table B-1. Follow Through children in classrooms with higher average entering test scores receive more positive corrective feedback for behavior and more emotional response from teachers (Variables 408a, 430a). They receive less positive corrective feedback and neutral corrective feedback for tasks (Variables 410a, 447a). In contrast to what one might expect, no significant correlations were found between academic feedback and WRAT scores.

Children in Non-Follow Through classrooms having higher entering test scores received tokens less often than children who had lower entry test scores (Variables 399a, 401a). This result is undoubtedly a supious finding since tokens are rarely used in Non-Follow Through classrooms. As in Follow Through classrooms, children having higher entering test scores receive positive corrective feedback less often (Variable 410a). Evidently, teachers in general give those children

Table B-1

CORRELATIONS OF ENTERING CHARACTERISTICS OF CHILDREN WITH INSTRUCTIONAL VARIABLES--FIRST GRADES

Variables		Percent of Males in the Classroom				Percent of Children with Preschool Experience				Mean Scores on Baseline WRAT			
		FT (N=109)		NFT (N=35)		FT (N=106)		NFT (N=32)		FT (N=68)		NFT (N=23)	
No.	Name	r	p<	r	p<	r	p<	r	p<	r	p<	r	p<
394a	All adult acknowledgment to children	.06		.27		.05		.25		.05		-.04	
395a	Adult acknowledgment to children, academic	.05		.26		.06		.24		.05		-.07	
396a	Adult acknowledgment to children, behavior	.05		.35		.05		.26		.06		-.03	
397a	Adult acknowledgment, other task-related	.06		.11		-.00 *	*	.10		.01		.05	
398a	All adult praise to children	-.04		-.001		-.05		.02		-.07		-.06	
399a	Adult reinforcement with token, academic	-.08		-.27		-.06		-.18		-.04		-.41	.05
400a	Adult reinforcement with token, behavior	-.13		*	*	-.12		*	*	-.13		*	*
401a	Adult reinforcement with token, other task-related	-.14		.26		-.16		.22		.16		-.42	.05
402a	Adult praise, academic	-.04		-.03		-.04		.02		-.05		-.06	
403a	Adult praise, behavior	-.11		-.04		-.12		-.07		-.09		.09	
404a	Adult praise, other task-related	.08		.06		.01		.02		.05		.06	
405a	All adult corrective feedback to children	-.06		.32		-.07		.43	.05	.06		-.11	
406a	Adult positive corrective feedback, academic	-.15		.19		-.13		.13		-.02		.13	
407a	Adult negative corrective feedback, academic	-.06		-.02		-.05		-.04		-.00*	*	-.03	
408a	Adult positive corrective feedback, behavior	.17		.08		.10		.03		.26	.05	-.23	
409a	Adult negative corrective feedback, behavior	.03		.05		.002		.05		.11		-.06	
410a	Adult positive corrective feedback, other task-related	.09		.04		.07		-.04		-.31	.01	-.54	.01
411a	Adult negative corrective feedback, other task-related	.19	.05	.13		.03		.04		-.01		-.39	
423a	Positive behavior, adults to children	-.02		-.53	.001	-.08		-.47	.01	.22		-.11	
426a	Adult expressions of unhappiness	.08		-.03		.03		-.02		-.13		-.13	
428a	Negative behavior, adults to children	-.03		.03		-.07		.02		.12		-.11	
430a	Total adult affect	-.03		-.51	.01	-.10		-.43	.01	.25	.05	-.26	
432a	Adult punishment of children	.05		.06		.05		.01		.11		-.09	
447a	Adult neutral corrective feedback, task-related	.14		.25		.09		.18		-.31	.01	-.02	
448a	Adult neutral corrective feedback, behavior	-.03		.17		.01		.46	.01	.12		.01	
449a	Adult neutral corrective feedback, academic	-.08		.08		-.08		.23		.08		-.03	

Note: The probability is presented only where the correlation is significant.

* = cannot be computed.

who enter school with more academic skills (as measured by the WRAT) less positive corrective feedback than they give children entering school with fewer academic skills.

d. Geographical Regions--Analysis of Variance

Regional effects were assessed by comparing classrooms located in the North Eastern, North Central, Southern, and Western United States on each process variable in an analysis of the variance. The results shown in Table B-2 indicate that in Non-Follow Through classrooms there is no relationship between geographical region, community size, or ethnicity, and classroom control or affect variables. However, some significant relationships were found in Follow Through classrooms, and the direction of the significant relationships is shown in Table B-3. (Note that "High" means the process occurred more frequently and "Low" means that it occurred less frequently.)

Based on our findings (as shown on Table B-3), it appears that Follow Through children in the North Eastern region are less likely to receive acknowledgment for behavior or academic achievement (Variables 395a, 396a) than children in the Southern region. However, they receive more corrective feedback for behavior and task-related subjects (Variables 408a, 447a, 448a) than children in other regions of the country. More praise and reinforcement for academic achievement (Variables 398a, 399a, 402a) is given to children in the North Central region than children elsewhere, but they receive less acknowledgment and neutral corrective feedback for behavior (Variables 396a, 448a). As we indicated earlier, children in the Southern region receive more acknowledgment for behavior and academic achievement (Variables 395a, 396a). They also receive more positive corrective feedback for academic achievement (Variable 406a) than do children in other regions of the country. Praise and reinforcement are used less often for achievement in academic subjects (Variables 399a, 402a) in Western classrooms, but adults acknowledge acceptable behavior and offer praise for tasks (other than academic tasks) more often here than in other regions (Variables 396a, 404a). No clear pattern emerges, and the regional differences noted may be due to the different emphasis of the various educational models represented in these regions.

e. Community Size--Analysis of Variance

The effects of community size were measured by comparing classrooms in communities with populations of over 200,000 (big cities), between 50,000 and 200,000 (medium cities), between 10,000 and 50,000 (small cities), and less than 10,000 (towns and rural). Table B-2 presents the significant results over all communities for Follow Through and Non-Follow Through. The direction of significant results for Follow

Table B-2

ANALYSIS OF VARIANCE OF ENTERING CHARACTERISTICS OF CHILDREN WITH INSTRUCTIONAL VARIABLES

(Follow Through and Non-Follow Through--First Grades)

Variables		Geographical Regions				Community Size				Ethnicity			
		FT (N=136)		NFT (N=35)		FT (N=136)		NFT (N=35)		FT (N=136)		NFT (N=35)	
No.	Name	F	p<	F	p<	F	p<	F	p<	F	p<	F	p<
394a	All adult acknowledgment to children	6.33	.01	1.30		2.10		2.47		.53		.08	
395a	Adult acknowledgment to children, academic	7.00	.01	1.88		1.99		2.21		.87		.06	
396a	Adult acknowledgment to children, behavior	3.61	.05	4.78		1.08		.57		1.57		1.11	
397a	Adult acknowledgment, other task-related	.02		.34		.13		.79		6.14	.01	.19	
398a	All adult praise to children	4.47	.01	1.53		.59		1.75		3.64	.05	.003	
399a	Adult reinforcement with token, academic	4.66	.01	1.03		4.91	.01	.62		3.98	.05	.97	
400a	Adult reinforcement with token, behavior	.86		*	*	2.09		*	*	2.75		*	*
401a	Adult reinforcement with token, other task-related	1.11		1.08		.75		.77		1.06		2.35	
402a	Adult praise, academic	6.07	.01	2.35		.74		1.76		5.00	.01	.04	
403a	Adult praise, behavior	.44		1.63		1.42		.97		1.28		.34	
404a	Adult praise, other task-related	2.76	.05	.62		1.41		1.25		2.07		.21	
405a	All adult corrective feedback to children	.97		.24		.82		1.30		3.23	.05	1.16	
406a	Adult positive corrective feedback, academic	3.40	.05	.02		1.92		.20		1.88		.87	
407a	Adult negative corrective feedback, academic	.30		1.10		1.38		.43		.47		.11	
408a	Adult positive corrective feedback, behavior	3.95	.01	.46		2.63		1.70		1.80		2.16	
409a	Adult negative corrective feedback, behavior	2.42		1.08		1.03		.49		1.54		.46	
410a	Adult positive corrective feedback, other task-related	1.22		.74		1.69		.60		.93		1.93	
411a	Adult negative corrective feedback, other task-related	1.05		.78		1.26		.23		.52		1.78	
423a	Positive behavior, adults to children	.77		1.39		4.75	.01	2.09		2.80		.001	
426a	Adult expressions of unhappiness	1.89		.64		1.26		.75		1.77		.81	
428a	Negative behavior, adults to children	2.25		1.26		1.61		.27		1.48		.48	
430a	Total adult affect	.65		1.22		5.72	.01	3.02		4.39	.05	.21	
432a	Adult punishment of children	.33		1.27		.10		.60		.76		.79	
447a	Adult neutral corrective feedback, task-related	4.34	.01	.49		3.36	.05	1.19		2.63		1.77	
448a	Adult neutral corrective feedback, behavior	5.55	.01	.32		.79		.66		2.31		1.30	
449a	Adult neutral corrective feedback, academic	.38		.40		1.16		.33		4.52	.05	1.12	

Note: The probability is presented only where the F test is significant.

* = cannot be computed.

Table B-3

THE DIRECTION OF SIGNIFICANT RELATIONSHIPS IN THE ANALYSIS OF VARIANCE FOR FIRST GRADE FOLLOW THROUGH CLASSROOMS (N=136)

Var. No.	Variable Name	Geographical Regions			
		North-east	North-central	South	West
349a	All adult acknowledgment to children	Low		High	
395a	All adult acknowledgment to children, academic	Low		High	
396a	All adult acknowledgment to children, behavior	Low	Low	High	High
398a	All adult praise to children		High		Low
399a	Adult reinforcement and token, academic		High		Low
402a	Adult praise, academic		High		Low
404a	Adult praise, other task related			Low	High
406a	Adult positive corrective feedback, academic	Low		High	
408a	Adult positive corrective feedback, behavior	High		Low	
447a	Adult neutral corrective feedback, task related	High	Low	Low	
448a	Adult neutral corrective feedback, behavior	High	Low		

Var. No.	Variable Name	Community Size			
		Big City	Small City	Big Town	Town and Rural
399a	Adult reinforcement and token, academic	High	Low	Low	Low
423a	Positive behavior, adults to children	Low			High
430a	Total adult affect	Low			High
447a	Adult neutral corrective feedback, task related	Low			High

Var. No.	Variable Name	Classroom Ethnicity*		
		White	Mixed	Black
397a	All adult acknowledgment to children, other task related	High		Low
398a	All adult praise to children	Low		High
399a	Adult reinforcement and token, academic	Low		High
402a	Adult praise, academic	Low		High
405a	All adult corrective feedback to children	Low	High	
430a	Total adult affect	High		Low
449a	Adult neutral corrective feedback, academic	Low		High

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*= White classrooms are those with <20% black children; Mixed classrooms have 20% to 80% black children; and Black classrooms are those with <80% black children.

Through by community size is shown in Table B-3. Follow Through children in large cities receive more tokens for academic achievement,* but children in towns and rural areas receive more neutral corrective feedback that is related to tasks (see Variables 399a and 447a in Table B-3). Children in towns and rural classroom environments experience more adult expression of feeling, especially positive affect by laughing and smiling more often in the classrooms (Variables 423a, 430a).

f. Ethnicity--Analysis of Variance

In this analysis, the effects of three groups of this variable were compared in an analysis of variance. (See Table B-2 for the overall significant relationships for Follow Through and Non-Follow Through.) Table B-3 presents the "treatment" groups that were compared in Follow Through. These groups were classrooms with less than 20% black children, classrooms with 20-80% black children and classrooms with more than 80% black children. The classrooms were labeled as predominantly white, mixed, and predominantly black.

Adults in Follow Through classrooms with more than 80% black children offer more praise, reinforcement, and neutral corrective feedback for academic achievement than do adults in classrooms with different racial compositions (Variables 399a, 402a, 449a). Children in classrooms with less than 20% black children are more frequently acknowledged for tasks other than academic ones and the adults show more positive and negative feelings (Variables 397a, 430a). When the racial mix of a classroom is more even, the children receive more corrective feedback (Variable 405a).

3. Results Within Sponsored Programs

In the analysis of individual sponsors entering demographic characteristics it is apparent that demographic characteristics and site effects are confounded. In the cases of regionality and community population, this confounding is so gross that, for example, often within a given sponsor one site will be isolated in each analysis as the sole representative of both southern region and rural population. Such cases render interpretation impossible, and the effects of region and community size are omitted from the following presentation. Percent of preschool experience is also omitted, since the previous analysis indicated no big difference.

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*The University of Kansas, which uses tokens in its model, has one site in a small town and four large-city sites in this evaluation sample.

a. Sex Differences--Correlations

In this analysis, a relatively continuous child characteristic (percent of male children in classroom) was correlated with each of the adult process variables. The results are displayed in Table B-4.

Differences in this analysis are extremely slight. At the .05 alpha level, four sponsors had no significant correlations. In the Far West model, less positive and neutral feedback occurred in classrooms where there were more boys enrolled than girls. However, although only these two variables (Variables 410a and 447a) reach a significant level, it is interesting to note the negative direction of the relation ship. In general, it appears that less affect, feedback, and control are occurring in the classrooms where there are more boys than girls. This observation contrasts distinctly with that of the Bank Street model, where the sole variable (Variable 403a) correlated at significant levels indicated that classrooms with more boys showed more occurrences of praise from adults. The only other significant relationship occurs in High/Scope, where classrooms in which more boys than girls were enrolled showed more occurrences of punishment (Variable 432a). Here a strong caution must be made regarding correlational data; punishment was observed rarely throughout the Follow Through program, including the High/Scope classrooms.

b. Mean WRAT Score--Correlations

In this analysis, the classroom average on the entering WRAT test was correlated with each of the adult process variables. The results are displayed in Table B-5.

As with the other entering characteristics, relatively few significant results were obtained. No control or affect variables in the Bank Street and University of Oregon classrooms were found to be related to baseline WRAT scores. In the Far West model, only one correlation reached a significant level. It indicated that children with higher WRAT scores received more neutral corrective feedback for academic achievement (Variable 449a).

In the Arizona model, high WRAT scores correlated negatively with neutral corrective feedback for behavior. Thus if children enter with higher test scores they receive less neutral feedback (see Table B-5, Variable 448a).

In the Kansas model children who entered with high WRAT scores received more acknowledgment and tokens for other task-related activities (Variables 397a, 401a). They also received more neutral and positive corrective feedback for behavior (Variables 408a, 448a). However, children with the higher entering scores also received less positive corrective feedback for other task-related activities (Variable 410a). Perhaps more was expected from children who entered with higher test scores, because there is no evidence that they received more praise or tokens for academic achievement.

Table B-4

CORRELATIONS OF SEX DIFFERENCES WITH INSTRUCTIONAL VARIABLES

(Percent of Males in Classrooms--First Grade)

Variables		Far West (N=20)		U. Arizona (N=22)		Bank St. (N=19)		U. Oregon (N=19)		U. Kansas (N=18)		High Scope (N=18)		EDC (N=19)	
No.	Name	r	p≤	r	p≤	r	p≤	r	p≤	r	p≤	r	p≤	r	p≤
394a	All adult acknowledgement to children	.17		-.04		-.16		.37		.04		.24		-.21	
395a	Adult acknowledgement to children, academic	.27		-.05		-.18		.32		.08		.14		-.21	
396a	Adult acknowledgement to children, behavior	-.37		-.01		.12		.41		.09		.32		-.28	
397a	Adult acknowledgement, other task related	-.07		-.01		.09		.24		-.13		.22		.01	
398a	All adult praise to children	-.05		.08		.14		.28		.05		.28		-.03	
399a	Adult reinforcement with token, academic	-.38		.08		*	*	.15		.13		.22		*	*
400a	Adult reinforcement with token, behavior	*	*	*	*	*	*	.17		-.18		*	*	*	*
401a	Adult reinforcement with token, other task-related	-.16		-.13		*	*	.06		-.21		*	*	*	*
402a	Adult praise, academic	.04		.01		-.06		.28		.14		.26		-.10	
403a	Adult praise, behavior	-.13		.41		.46	.05	.18		-.19		.20		-.33	
404a	Adult praise, other task-related	-.11		.17		.42		.13		-.02		.06		.24	
405a	All adult corrective feedback to children	-.24		.23		.24		.06		-.11		-.37		-.17	
406a	Adult positive corrective feedback, academic	-.20		.08		-.14		.02		-.01		-.09		-.30	
407a	Adult negative corrective feedback, academic	-.20		-.05		-.27		-.07		.19		.16		-.12	
408a	Adult positive corrective feedback, behavior	.25		.19		.14		.13		.17		.28		.29	
409a	Adult negative corrective feedback, behavior	-.04		.18		.37		.09		-.19		.11		.24	
410a	Adult positive corrective feedback, other task-related	-.44	.05	.16		-.07		.04		-.02		.15		-.26	
411a	Adult negative corrective feedback, other task-related	-.08		.30		.35		*	*	.12		.20		-.05	
423a	Positive behavior, adults to children	-.13		-.17		-.16		.15		.16		.09		.18	
426a	Adult expressions of unhappiness	-.04		-.24		.33		.13		.37		.16		-.18	
428a	Negative behavior, adults to children	-.05		.16		.43		-.37		-.03		.13		.19	
430a	Total adult affect	-.15		-.15		-.07		.08		.19		.07		.22	
432a	Adult punishment of children	.04		.25		.20		.05		-.31		.50	.05	.09	
447a	Adult neutral corrective feedback, task-related	-.44	.05	.22		.24		.19		.01		.06		-.04	
448a	Adult neutral corrective feedback, behavior	-.14		.16		.03		.07		.002		-.34		.10	
449a	Adult neutral corrective feedback, academic	.09		.11		.32		-.03		-.21		-.29		-.07	

Note: The probability is presented only where the correlation is significant.
* = cannot be computed

Table B-5

CORRELATIONS OF BASELINE WRAT SCORES WITH INSTRUCTIONAL VARIABLES
(Classroom Average on Entering WRAT--First Grade)

Variables		Far West (N=12)		University of Arizona (N=12)		Bank Street (N=14)		University of Oregon (N=6)		University of Kansas (N=18)		High Scope (N=14)		EDC (N=12)	
No.	Name	r	p<	r	p<	r	p<	r	p<	r	p<	r	p<	r	p<
394a	All adult acknowledgment to children	.07		.34		.26		.45		-.18		-.11		-.06	
395a	Adult acknowledgment to children, academic	.10		.52		.26		.44		-.37		-.08		-.06	
396a	Adult acknowledgment to children, behavior	-.24		-.24		.33		.31		.12		.01		*	*
397a	Adult acknowledgment, other task-related	.01		-.25		.01		.49		.50	.05	-.07		-.04	
398a	All adult praise to children	.22		-.19		.20		-.32		-.04		.10		.18	
399a	Adult reinforcement with token, academic	.29		*	*	*	*	*	*	.14		.11		*	*
400a	Adult reinforcement with token, behavior	*	*	*	*	*	*	*	*	-.26		*	*	*	*
401a	Adult reinforcement with token, other task-related	*	*	*	*	*	*	*	*	.48	.05	*	*	*	*
402a	Adult praise, academic	-.26		-.04		.28		-.26		.02		.12		.10	
403a	Adult praise, behavior	.29		.42		-.18		-.26		-.23		.09		.22	
404a	Adult praise, other task-related	-.37		-.34		-.11		-.38		.21		.01		.15	
405a	All adult corrective feedback to children	.15		-.29		.00		.55		.12		.07		.48	
406a	Adult positive corrective feedback, academic	.00		.36		-.22		-.20		-.26		.38		.51	
407a	Adult negative corrective feedback, academic	-.36		*	*	.17		.17		-.14		.11		.24	
408a	Adult positive corrective feedback, behavior	.32		-.40		-.04		.59		.74	.001	.39		-.68	.05
409a	Adult negative corrective feedback, behavior	.22		-.04		-.09		-.08		.12		.27		-.05	
410a	Adult positive corrective feedback, other task-related	.17		-.14		-.47		-.16		-.68	.01	-.71	.01	.70	.01
411a	Adult negative corrective feedback, other task-related	.28		.53		-.12		*	*	.001		-.35		.28	
423a	Positive behavior, adults to children	-.36		.41		.41		-.30		-.01		.56	.05	-.40	
426a	Adult expressions of unhappiness	.19		*	*	-.31		*	*	-.21		.31		.58	.05
428a	Negative behavior, adults to children	.23		.03		-.11		.18		.05		.22		-.02	
430a	Total adult affect	-.02		.38		.39		-.04		.05		.54	.05	-.22	
432a	Adult punishment of children	.26		-.37		.39		-.12		.17		-.18		.23	
447a	Adult neutral corrective feedback, task-related	-.52		-.56		-.16		*	*	.22		-.77	.001	.55	
448a	Adult neutral corrective feedback, behavior	.09		-.64	.05	-.23		.51		.68	.01	.50		.39	
449a	Adult neutral corrective feedback, academic	.65	.05	-.51		.23		.62		.11		-.19		-.42	

Note: The probability is presented only where the correlation is significant.

* = cannot be computed.

Children in the High/Scope classrooms where higher WRAT scores had been found tended to receive less neutral and positive corrective feedback for tasks than children in other classrooms (Variables 410a, 447a). More feelings are shown in classrooms where the entry scores are higher, and teachers show more positive affect toward children (Variables 423a, 430a).

Children in EDC classrooms where higher WRAT scores were found tended to receive more positive corrective feedback for nonacademic tasks and less positive corrective feedback for behavior (Variables 408a, 410a). Adults expressed more unhappiness (Variable 426a) in EDC classrooms where the entering test scores were higher.

c. Children's Ethnicity--Analysis of Variance

As described in the analysis of pooled Follow Through and pooled Non-Follow Through, the ethnicity variable was divided into three groups of classrooms and its effects were compared in an analysis of variance. The classrooms were labeled as predominantly white, mixed, and predominantly black. Table B-6 lists those process variables significantly affected ($p < .05$) within each sponsor, and shows the nature of the difference among the three groupings. The direction of the significant relationships is indicated by "High" (positive relationship), "Med", and "Low" (negative relationship).

In this analysis, three sponsors (Far West, University of Arizona, and EDC) showed significant ethnicity effects on only one or two process variables. Since 19 process variables are examined here, this result is approximately what would be expected by chance, and it can be inferred that classroom control and adult affect are not influenced by children's ethnicity in these programs. However, in the case of Far West the data indicate that children in classrooms with a higher percentage of white students receive more acknowledgment from adults (Variable 394a).

Among the other programs, Bank Street and High/Scope showed an effect on only four variables each. The pattern in each case is mixed, but in general Bank Street provided more acknowledgment and feedback (Variables 394a, 395a, 406a) in classrooms classified as mixed or predominantly black than in classrooms classified as predominantly white. In High/Scope classrooms, adults more often expressed unhappiness (Variable 426a) in predominantly white classrooms, and neutral corrective feedback for academic activities (Variable 449a) was more often observed in classrooms classified as mixed.

Most of the differences in this analysis occurred within the two more structured "reinforcement" models, University of Kansas and University of Oregon. Unfortunately, since neither sponsor had classrooms classified as predominantly white, the emergent pattern is incomplete, but it appears that adults in University of Oregon classrooms

Table B-6

ANALYSIS OF VARIANCE OF PROCESS VARIABLES SIGNIFICANTLY AFFECTED BY CHILDREN'S ETHNICITY*--FIRST GRADE
(N = 136)

Variables		Far West Classrooms			U. Arizona Classrooms			Bank Street Classrooms			U. Oregon Classrooms			U. Kansas Classrooms			High Scope Classrooms			EDC Classrooms		
No.	Name	White (N=12)	Mixed (N= 8)	Black (N= 0)	White (N= 7)	Mixed (N= 9)	Black (N= 7)	White (N= 7)	Mixed (N= 2)	Black (N=10)	White (N= 0)	Mixed (N= 6)	Black (N=13)	White (N= 0)	Mixed (N= 6)	Black (N=12)	White (N= 5)	Mixed (N= 5)	Black (N= 8)	White (N= 4)	Mixed (N= 9)	Black (N= 6)
394a	All adult acknowledgment to children	High	Low					Low	Med-High	Med-High							High	Med	Low			
395a	Adult acknowledgment to children, academic							Low	Med-High	Med-High							High	Med	Low			
397a	Adult acknowledgment, other task-related	Med	Low		Med	Low	High								Med-High	Low-Med				Low	Med	High
398a	All adult praise to children											Med-High	Low									
400a	Adult reinforcement with token, behavior											Low-Med	Low									
401a	Adult reinforcement with token, other task related											Low-Med	Low									
402a	Adult praise, academic											Low-Med	Low									
404a	Adult praise, other task-related							High	Low	Med		Low-Med	Low									
405a	All adult corrective feedback to children														High	Med-High						
406a	Adult positive corrective feedback, academic							Low	High	Med-High												
407a	Adult negative corrective feedback, academic											Low-Med	Low									
408a	Adult positive corrective feedback, behavior														High	Low-Med						
410a	Adult positive corrective feedback, other task-related														Low	Low-Med						
423a	Positive behavior, adults to children											Low-Med	Low									
426a	Adult expressions of unhappiness																Med	Low	Low			
430a	Total adult affect											Low-Med	Low									
447a	Adult neutral corrective feedback, task-related											Low-Med	Low									
448a	Adult neutral corrective feedback, behavior														Low-Med	Low						
449a	Adult neutral corrective feedback, academic														Low-Med	Low	Low	Med-High	Low			

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* = White classrooms are those with < 20% black children; Mixed classrooms have 20% to 80% black children; and Black classrooms are those with > 80% black children.

display less affect and within both models adults use less corrective feedback of any kind in classrooms classified as predominantly black. Caution should be used in interpreting this set of data, however. An analysis of variance will show significance between two levels that differ only very slightly if there is little or no variance within one of them. That is the case here, for while the indicated process variables were at low levels in the classrooms classified as mixed, they were at zero levels in nearly all of the classrooms classified as predominantly black. Because there is no variance at the zero level, the significance of the slight difference is exaggerated.

In this analysis, possibly the most salient (and pleasant) observation is that within the seven programs only two instances of significant differences between groups were found for variables representing negative or unhappy behavior on the part of adults (the Variables were 407a, 426a). In both cases, the difference may be statistically exaggerated by appearing between low frequency of occurrence and zero occurrence. While some control and affect differences may occur within sponsors, as far as we can tell, no ethnic group is being more harshly or negatively treated than another in the Follow Through program.

D. Summary

In all of these analyses, it is apparent that the demographic characteristics of children had slight effect on their teachers' behavior (and we might infer attitude) toward them. This observation is gratifying from two aspects. Although the demographic characteristics were neither controlled nor randomized, the sample does not appear to invalidate or significantly affect the analysis. More important from the standpoint of all parties interested in the Follow Through program, not the least of whom are the children, if bias exists, it is so subtle as to be unidentifiable using even a sophisticated observation procedure like that reported here.

Appendix C

CLASSROOM OBSERVATION INSTRUMENT

CLASSROOM OBSERVATION INSTRUMENT

1536

Classroom Summary Information

FOR NCS USE ONLY

0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

DIRECTIONS: Make sure that all of the identifying information has been entered on the Classroom Summary Information form prior to your observation of physical environment. Do not make any stray marks outside the boxes provided in places where written information is required. Make sure you code the classroom summary information form booklet Identification Number in the I. D. grid of all booklets used in the observation.

TEACHER NUMBER

0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

Grade

K
1
2
3
M

OBSERVER NUMBER

0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

TODAY'S DATE

MO.		DAY		YR.	
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

I. D. NUMBER

0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Teacher ____________________

School ____________________

City ____________________

Observer ____________________

CLASSROOM SUMMARY INFORMATION

⓪①②③④ Number of teachers that regularly work in the classroom.

⓪①②③④ Number of aides that regularly work in the classroom.

⓪①②③④ Number of volunteers/visitors present today.

Classroom Summary Information (Cont.)

A		B	
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

A. Number of children enrolled

B. Number of children present today

Total Class Duration

- ○ 2½ hours
- ○ 3 hours
- ○ 3½ hours
- ○ 4 hours
- ○ 4½ hours
- ○ 5 hours
- ○ 5½ hours
- ○ 6 hours
- ○ 6½ hours
- ○ 7 or more hours

NCS Trans-Optic S387A-321

Physical Environment Information
(Mark all that apply.)

For each of the items below, mark all that apply:

① Present
② Used today

Seating Patterns:
○ Movable tables and chairs for seating purposes.
○ Stationary desks in rows.
○ Assigned seating for at least part of the day.
○ Children select their own seating locations.
○ Teacher assigns children to groups.
○ Children select their own work groups.

GAMES, TOYS, PLAY EQUIPMENT
① ② small toys (trucks, cars, dolls and accessories
① ② puzzles, games
① ② wheel toys
① ② small play equipment (jumpropes, balls)
① ② large play equipment (swings, jungle gym)
① ② children's storybooks
① ② animals, other nature objects
① ② sandbox, water table
① ② carpentry materials, large blocks
① ② cooking and sewing supplies

INSTRUCTIONAL MATERIALS
① ② Montessori, other educational toys
① ② children's texts, workbooks
① ② math/science equipment, concrete objects
① ② instructional charts

AUDIO, VISUAL EQUIPMENT
① ② television
① ② record or tape player
① ② audio-visual equipment

GENERAL EQUIPMENT, MATERIALS
① ② children's own products on display
① ② displays reflecting children's ethnicity
① ② other displays especially for children
① ② magazines
① ② achievement charts
① ② child-size sink
① ② child-size table and chairs
① ② child-size shelves
① ② arts and crafts materials
① ② blackboard, feltboard
① ② child's own storage space
① ② photographs of the children on display

OTHER
① ② please specify . . . . . .

MAKE NO

STRAY MARKS

IN BLANK AREAS

CLASSROOM OBSERVATION PROCEDURE

CLASSROOM CHECK LIST (be sure to code **EVERYONE** in the class)

			ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
	1. Snack, lunch	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	2. Group time	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	3. Story Music Dancing	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	4. Arts, Crafts	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	5. Guessing Games Table Games Puzzles	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
○ TV ○ Audio-Visual Materials ○ Exploratory Materials ○ Math and Science Equipment ○ Texts, Workbooks ○ Puzzles, Games	6. Numbers Math Arithmetic	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	7. Reading Alphabet Lang. Development	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	8. Social Studies Geography	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	9. Science Natural World	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	10. Sewing Cooking Pounding Sawing	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	11. Blocks Trucks	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	12. Dramatic Play Dress-Up	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	13. Active Play	T	① ② ③	① ② ③	① ② ③ ④	① ②
		A	① ② ③	① ② ③	① ② ③ ④	① ②
		V	① ② ③	① ② ③	① ② ③ ④	① ②
		i	① ② ③	① ② ③	① ② ③ ④	① ②
	14. RELIABILITY SHEET ○					

2

		ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
15. Practical Skills Acquisition		T ①②③	T ①②③	T ①②③④	T ①②
		A ①②③	A ①②③	A ①②③④	A ①②
		V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
16. Observing		T ①②③	T ①②③	T ①②③④	T ①②
		A ①②③	A ①②③	A ①②③④	A ①②
		V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
17. Social Interaction Ob [Ⓒ ② Ⓢ]	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
18. Unoccupied Child		T ①②③	T ①②③	T ①②③④	T ①②
		A ①②③	A ①②③	A ①②③④	A ①②
		V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
19. Discipline		T ①②③	T ①②③	T ①②③④	T ①②
		A ①②③	A ①②③	A ①②③④	A ①②
		V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
20. Transitional Activities	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
21. Classroom Management	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
22. Out of Room	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②

NUMBER OF ADULTS IN CLASSROOM ⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

PREAMBLE

Focus Person Codes:
00 - The original class teacher
1-76 - Child codes
77 - Volunteer
88 - Teacher other than designated class teacher
99 - Aide to teacher

Activity	Focus Person Code	FOCUS PERSON	Focus Person's Name and Number	FOR NCS USE ONLY
⓪⓪ ①① ②② ③③ ④④ ⑤⑤ ⑥⑥ ⑦⑦ ⑧⑧ ⑨⑨	⓪⓪ ①① ②② ③③ ④④ ⑤⑤ ⑥⑥ ⑦⑦ ⑧⑧ ⑨⑨	○ Child ○ Teacher ○ Aide ○ Volunteer CONTINUATION OF PREVIOUS FOCUS ACTIVITY ○ Yes ○ No	(Do not write outside this box) Number of Children ①②ⓈⓁ	⓪⓪⓪⓪⓪ ①①①①① ②②②②② ③③③③③ ④④④④④ ⑤⑤⑤⑤⑤ ⑥⑥⑥⑥⑥ ⑦⑦⑦⑦⑦ ⑧⑧⑧⑧⑧ ⑨⑨⑨⑨⑨

ADULT	Directing	Participating	Observing	Not Involved
Teacher	○	○	○	○
Aide	○	○	○	○
Volunteer	○	○	○	○

TIME STARTED

Hour	Minute	
⑧⑨⑩⑪⑫	⓪①②	⓪①②③④
①②③④⑤	③④⑤	⑤⑥⑦⑧⑨

1	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

2	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

3	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

4	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

5	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

6	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

7	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

8	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

9	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

10	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

11	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

12	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

13	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

14	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

15	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

16	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

17	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

18	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

19	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

20	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

21	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

22	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

23	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

24	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

25	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

26	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

27	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

28	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

29	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

30	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

31	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

32	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

33	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

34	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

35	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

36	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

37	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

38	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

39	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

40	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

41	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

42	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

43	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

44	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

45	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

46	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

47	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

48	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

49	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

50	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

51	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

52	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

53	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

54	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

55	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

56	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

57	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

58	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

59	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

60	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	H U N T
	S C D 2	C D 2	6 7 8 9 10	Q G P
	C S L AN M	S L AN M	11 12 NV X	O W DP A B

61	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

62	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

63	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

64	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

65	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

66	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

67	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

68	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

69	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

70	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

71	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

72	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

73	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

74	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

75	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

76	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	Ⓗ Ⓤ Ⓝ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓠ Ⓖ Ⓟ
Ⓒ	Ⓢ Ⓛ (AN) Ⓜ	Ⓢ Ⓛ (AN) Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓞ Ⓦ (OP) Ⓐ Ⓑ

TIME STOPPED

Hour	Minute	
⑧ ⑨ ⑩ ⑪ ⑫	⓪ ① ②	⓪ ① ② ③ ④
① ② ③ ④ ⑤	③ ④ ⑤	⑤ ⑥ ⑦ ⑧ ⑨

ACTIVITY CHANGE

1	2	3	4	5	6	7	8	9	10	11
○	○	○	○	○	○	○	○	○	○	○

12	13	14	15	16	17	18	19	20	21	22
○	○	○	○	○	○	○	○	○	○	○

Appendix D

OPERATIONAL DEFINITIONS OF THE FIVE-MINUTE OBSERVATION CODES

OPERATIONAL DEFINITIONS OF THE FIVE-MINUTE OBSERVATION CODES

1. Summary of Five-Minute Observation

The Who and To Whom codes are used to indicate the participants in an interaction. These codes make it possible to designate the person or group of persons initiating or receiving an action. The letter M refers to such items as typewriters, tape recorders, films, and the like.

The 12 What codes refer to the action categories that have survived several years of use and review. They preserve the distinctions that seem to be important in describing varying classroom processes.

The How categories are used in conjunction with the What codes to specify emotional or descriptive aspects of an interaction and to define strategies used to control behavior.

Operational definitions of the codes used in the classroom observation instrument are given in the following subsections.

2. Operational Definitions

a. The Who Column

The Who column indicates who is doing the talking or the action:

Code	Code Usage
T - Teacher	The one person who is ultimately responsible for the everyday conduct of the classroom.
A - Aide	Classroom adults who are regular in their attendance and are paid by Follow Through or the school district.
V - Volunteer	Any other adult who works in the classroom, such as a parent.
C - Child	When the focus of an observation is on a specific child, that child is "C" (all other children are "D" - Different Child). When the focus is on an adult, C refers to any individual child with whom the adult is interacting.

Code	Code Usage
D - Different Child	A second child in an interaction when the focus child, C, is being observed.
2 - Two Children	
S - Small Group	Three to 8 children.
L - Large Group	More than 8 children.
An - Animal	Any live animal in the classroom (including birds and fish).
M - Machine	Record player, tape recorder, TV, and so on.

b. The To Whom Column

The To Whom column indicates the person, group, or machine that is being talked to or interacted with:

Code	Code Usage
T	These codes are all the same as the codes for the Who column.
A	
V	
C	
D	
2	
S	
L	
An	
M	

c. The What Column

It is assumed that all interactions coded in the What column are verbal unless marked NV (nonverbal). (NOTE: NV and certain codes from the How column are used in the examples below. See the How column definitions on p. D-11.)

Code	Code Usage
1 - Command or Request	Code 1 asks for a response free of argument or speculation. There is one expected, acceptable response that is carried out, verbally or nonverbally: - "Open the door, please." TS1

Code	Code Usage	
	- "Read this sentence."	TC1A
	- "Draw a line."	TC1
	- "Zip me up."	CT1
	- "Gimme that book."	CD1
1Q - Direct Question	1Q questions ask for direct recall of material already learned or anticipate a specific or automatic response or a yes/no answer. 1Q questions elicit the following responses: statements of preference, statements of fact, itemizing; classifying, and definitions.	
	- "In the story did you like Mr. Brown?"	TC1Q
	- "What is 1/2 and 1/2?"	CD1QA
	- "What was on the list of mountain climbing equipment we made yesterday?"	TL1Q
	- "If you had 2 pears and 3 apples, what would you have 5 of?"	TS1Q
	- "Is this dog a Great Dane or a St. Bernard?"	CD1Q
	- "What does this word mean?"	TC1QA
2 - Open-Ended Question	Code 2 questions are those that allow a free expression of ideas or feelings and invite opinions. Code 2 questions encourage responses that require: interpretation of ideas, relationships of cause and effect, making of comparisons, reasoning, application of previously learned material to a new situation, and describing a process. Code 2 may be phrased as a statement as well as a question.	
	- "What do you think of the Eskimo way of life?"	TC2
	- "Why did you like Mr. Brown in the story?"	CD2
	- "State the problem in your own words."	TC2
	- "Tell me how an electric train works."	CD2
	- "In what ways are the things in this picture alike?"	TC2
	- "Use these sticks to see if you can find all the different groupings that add up to 10."	TC2A

Code	Code Usage

3 - Response

Code 3 is a response to a command (Code 1), a question (Code 1Q, 2), or corrective (Code 9).

When the response is concerned with basic academic skills, Code 3 is used with A in the How column (see definition for A on p. 14); Code 3 is used with B in the How column when it follows acknowledgment, praise, or a corrective for behavior (see definition for B on p. 14).

- "Read the next sentence, Jimmy."	TC1A
"The dog chased the ball."	CT3A
- "Will you add 2 and 2?"	TC1QA
"2 and 2 makes 4."	CT3A
- "Guess what I've brought for you."	CT2
"Flowers--or an apple."	CT3
- "Please shut the door."	TC1
The child shuts the door (nonverbal).	CT3NV
- "Did you save my painting?"	CT1Q
"Yes, it's hanging up."	TC3
- "We can't hear when you do that, Alice."	TC9GB
Alice is quiet.	CT3NVB

4 - Instruction, Explanation

Code 4 is used when a teacher or child is:

(1) Verbally giving new information to others, reviewing lessons, or explaining rules of behavior.

(2) Nonverbally engaged in demonstrating or in an activity that is productive, organized, or exploratory (including game playing, blocks, dolls, and water play).

When the interaction is concerned with the basic skills of reading, writing, spelling, and computation, Code 4 is used with A in the How column. If an object is being used in self-instruction, Code 4 is used with 0 in the How column.

- "Flowers grow everywhere. There are many different kinds of flowers and they grow in many shapes and colors."	CL4
- "Here is a game called 'Community People.' You play by matching the pictures on your card with those on the large card."	TS4

Code	Code Usage	
	- "This is how I'd like you to do these exercises: First, fold your paper in half like this. Then in half again like this. Then put the first problem in this square and the second here."	TS4
	- "I made my puppet out of an old sock and I made his eyes from pieces of a crayon (holding puppet)."	CS4
	- "You have to add 3 to 7 here and carry the 1 over to this column; then add those."	CD4A
	- Child learning the shape of a letter by running his finger over a sandpaper letter on a card. (NOTE: When the action involves only one person, the Who and To Whom columns are coded with the same letter.)	CC4NVOA
	- Child reading aloud to a small group of children.	CS4A
	- A child building a block tower.	CC4NVO
	- Child reading to himself.	CC4NVA
5 - General Comments/ General Action	Greetings, personal compliments, social or nontask-related comments and remarks. Irrelevant remarks are also coded 5.	
	- "Hello." "Good morning."	TC5
	- "That's a pretty dress."	CT5
	- "I can't stand you today."	CD5N
	Classroom management activities, general movement about the room, mild horseplay, eating, napping, are coded 5NV. (5NV is coded only if there is no talking along with the general action; otherwise, the observer codes the kind of remark that is accompanying the general action.)	
	- Child setting the table for lunch or snack.	CC5NV
	- Two children jostling in a line.	224NV
	- Teacher walking around the room.	TT5NVX
6 - Task-Related Command	Code 6 is used for a statement about the activity or problem at hand in which children and/or adults are involved.	

Code	Code Usage	

- Two children making clay animals:

C:	"This clay makes my hands sticky."	CD6
D:	"The horn won't stay on my cow."	DC6
C:	"Mine doesn't have a horn."	CD6

- Teacher is conducting a Show and Tell period:

T:	"What did you do over the weekend?"	TL1Q
C:	"I went to the zoo with my daddy."	CT3
D:	"The tigers are really big."	DT6
C:	"The elephants are bigger."	CD6

- Three children are working with metal washers and a balance:

C:	"I think 3 big washers will balance 4 small ones."	C26A
D:	"I'll try it."	CD6A
D:	"I sure like your cowboy boots."	DC5
C:	"It balanced!"	C26A

7 - Acknowledge

An indication that a response, product or behavior is recognized or agreed with is coded 7. Another form of acknowledgment is to repeat someone else's statement immediately.

Code 7 with A in the How column is used to indicate acknowledgment of a response having to do with academic subject matter (see definition of Academic on p. 14); Code 7 is used with B in the How column to indicate acknowledgment of a response having to do with behavior (see definition of Behavior on p. 14).

- Nodding (nonverbal) to indicate the painting is acceptable.	TC7NV
- "Yes, that's the right way to knead clay."	TC7
- "That math problem is correct."	TC7A
- "Thank you for sitting down when I asked you."	TC7B
- "What do you think is in this bag, Peter?"	TC2
"I think it's a carrot."	CT3
"You think it's a carrot."	TC7

8 - Praise

Code 8 is used for praise of a response, product or behavior. Praise in academic areas is coded 8 with A in the How column (see definition of Academic on p. 14); praise for behavior is coded 8 with B in the How column (see definition for Behavior on p. 14).

Code	Code Usage	
	- "What a pretty picture you've made!"	TC8
	- "I like the story you wrote about your trip, Jim."	TC8A
	- "You've done a fine job on your math workbook."	TC8A
	- "I'm really proud of you, class, for behaving so well while Mr. Jones was here."	TL8B
9 - Corrective Feedback	Corrective Feedback is the attempt to change or modify a response, product, or behavior. Code 9 is used when the subject of the observation tries to change another's behavior or corrects his answers or work. Codes G, Q, N, and P from the How column can be coded with 9 to show the method used to effect behavior modification (see the descriptions of codes in the How column, pp. 11, 12). Code 9 is used with A in the How column to indicate corrective feedback in academic areas and with B in the How column to indicate corrective feedback having to do with classroom behavior.	
	- "Don't throw your ball against the wall; come and play on the swing."	TC9GB
	- "You'll have to stay in at recess if you continue to talk."	TC9NB
	- "Are you sure Sacramento is the capital of New Mexico?"	TC9Q
	- "The answer to that math problem is wrong."	TC9A
	- "No, that word is spelled b-u-i-l-d."	TC9GA
	- "You have not mixed that paint correctly."	TC9
10 - No Response	Code 10 is used for no response when a response is called for an none is forthcoming to complete the interaction. (NV is not coded with 10, because 10 is by definition nonverbal.)	
	- "Teacher, may I be next?"	CT1Q
	Teacher does not reply because she is talking to another child.	TC10
	- "Jimmy, let me play with you."	CD1
	Jimmy does not look up or answer.	DC10

Code	Code Usage	
11 - Waiting	Code 11 is used to code the subject of the observation waiting in line or for materials, attention, use of equipment, and activity change. It is also used when the subject is not attending or not involved with anyone or anything. (NV is not coded with 11 because it is nonverbal by definition.)	
	- Child waiting at the teacher's desk while the teacher works with another child.	CC11
	- Child has finished his work and is sitting at his desk staring off into space.	CC11
12 - Observing, Listening	Code 12 is used when the subject of the observation is listening to or watching other people, other activities, TV, slides, films, and the like. (NV is not coded with 12.)	
	- A child sitting on his chair is watching a small group on the rug play with blocks.	CS12
	- Child listens to another child give a report.	CD12
	- Teacher stands watching the children and the activities in the room.	TL12
NV - Nonverbal	When the action being coded is not accompanied by words, NV is coded in the What column, along with the other relevant codes.	
	- Child laughing.	CC5NVH
	- Teacher passes out material silently to a small group.	TS5NV
	- Child taps the teacher's arm without speaking, requesting her attention.	CT1NVT
	- Child sits down in response to a request from the teacher.	CT3NV
X - Movement	Code X is used when the subject of the observation moves and for movement of a person with whom the subject is interacting. X can be used with any What code. If the movement is nonverbal and no What code is applicable, code X with 5 (general action).	
	- Teacher moves about the room while lecturing to the class.	TL4X
	- Child asks, "Miss Smith, will you help me?" while moving to the teacher.	CT1QX

Code	Code Usage	
	- Child walks over to close the door in response to a request from the teacher.	CT3NVX
	- Child runs to the door when recess is announced.	CC5NVX

d. The How Column

Categories in the How column are used in conjunction with the What codes.

Code	Code Usage	
H - Happy	Obvious behavioral expressions of happiness or positive affect (such as laughing, smiling, giggling, when they appear to indicate pleasure rather than fear).	
	- A child jumping up and down, clapping hands and grinning over a new puppet.	CC5NVH
	- A child laughing at a joke.	CC5NVH
	- Teacher smiles as she says, "What are you doing?"	TC1QH
	- Child smiles in reply to the teacher's praise.	CT3NVH
	- Two girls giggling and talking in the corner.	225H
U - Unhappy	Obvious behavioral expressions of sadness or unhappiness, such as crying or welling tears.	
	- Child with tear-filled eyes waiting in a line.	CC11NVU
	- Child crying.	CC5NVU
N - Negative	Expressions of annoyance or anger, negative content (e.g., sarcasm, insults, threats), scolding, rejection, destructive behavior.	
	- "You're stupid!"	CD5N
	- Teacher, red-faced and tight-lipped with anger, glares at class.	TL12N
	- "Johnny, if you can't leave Alice alone, I will ask you to sit in the corner."	TC9NB
	- Child throws jar of paint on the floor in anger.	CC5NVN

Code	Code Usage	
T - Touch	Whenever one person touches another person, T is coded--with H to denote a positive touch, with N to denote a negative touch (hit, slap, pinch), and with P to denote a punishing touch from an adult to a child.	
	- Girl pinches another girl's arm.	CD5NVNT
	- Teacher puts her arm around a child and smiles as she says, "Jenny, will you help Margaret with her puzzle?"	TC1QHT
	- Teacher moves around the class and touches a child on the head momentarily as she passes.	TC5NVXT
	- Teacher holds child's hand.	TC5NVT
	- Teacher spanks child.	TC9NVPTB
Q - Question	Coded with 1 for a direct question and with 9 when corrective feedback is in question form.	
	- "Are you sure that 8 is the correct answer?"	TC9QA
	- "What color should I use?"	CT1Q
	- "Didn't I tell you not to bother Jimmy?"	TC9QB
	- "You weren't paying attention when I explained it, were you?"	TC9QB
G - Guide/ Reason	G is coded with 9 when corrective feedback is positive and guides to an alternative activity, approach to a problem, and the like, or when the corrective includes a reason or explanation.	
	- "It might work better if you turned it around."	TC9G
	- "Sit down so the others can see, Gerald."	TC9GB
	- "If you knock that over it will make Jim angry, so please build your own tower."	TC9GB
P - Punish	Punish covers a range of adult disciplinary or behavior-modifying techniques, including withholding of privileges, isolation of a child, physical punishment (coded with T). P is coded only with 9.	
	- "Angela, go over to the corner and sit there alone until we're through!"	TC9PB
	- "Okay, Fred, no recess for you!"	TC9PB

Code	Code Usage	
	- Teacher spanks child for disruptive behavior.	TC9NVPT
O - Object	Concrete, inanimate objects that are used in nonverbal self-instruction.	
	- Child working on math using Cuisenaire rods.	CC4NVOA
	- Child building a block tower.	CC4NVO
	- Child fitting together pieces of a puzzle.	CC4NVO
	- Small group using pennies in working out math problems.	SS4NVOA
	- Child examining several kinds of pine cones.	CC4NVO
	[NOTE: When an object (token, candy, and the like) is given as a reward for a correct response or good behavior, O is coded with 8.]	
W - Worth	Child statements of self-worth, self-praise, or self-esteem; exclamations of accomplishment; positive remarks about one's self; bragging.	
	- "I did it!"	CT6W
	- "I can do three cartwheels in a row!"	CD6W
	- "Isn't my dress pretty?"	CT1QW
DP - Dramatic Play/ Pretend	Describes play acting, puppet shows, and other dramatic presentations, talking to toys or dolls, pretending or making believe, role playing.	
	- Boy walking on all fours, howling like a wolf.	CC5NVDP
	- Two children giving a puppet show to the rest of the class: "Oh, here comes the prince!"	CL6DP
	- Child talking to her doll: "Now, Mary Pat, you know I've told you not to do that."	CC9BDP
	(NOTE: Because there is no code in the Who and To Whom columns to symbolize a toy, doll, or other object of that kind, the example above must be coded as if the child is talking to herself.)	

Code	Code Usage	
A - Academic	Interactions that have to do with the development of basic skills as measured on achievement tests: reading (letter and word recognition, vocabulary, pronounciation, grammar), writing, and computation (number recognition, counting, adding, subtracting).	
	- "What is 2 plus 2?" "Two and 2 is 5." "No, it's 4."	TC1QA CT3A TC9GA
	- "You read beautifully today, Aaron."	TC8A
	- "Will you show me how to do this problem, Robert?"	CD1QA
	- "I figured out that word all by myself!"	CT6WA
B - Behavior	Describes interactions concerned with classroom behavior (deportment, conduct). B is used only with the feedback codes (7, 8, 9) and with the responses thereto.	
	- "Sit down--now!" Child sits down.	TC9B CT3NVB
	- "You were very quiet in group time today, Ralph, and we all appreciated it. Good for you!" Ralph smiles.	TC8B CT3NVHB
	- "Betty, please go over and work on your collage instead of bothering Gina. Betty replies, "O.K."	TC9GB CT3B
	(NOTE: If neither A nor B is coded, it is assumed that the frame concerns other task-related content.)	

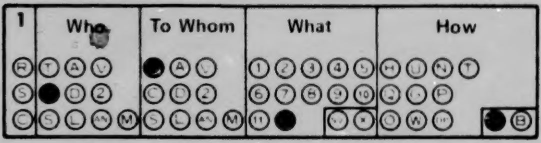
e. The Ⓡ, Ⓢ, and Ⓒ Codes

Ⓡ- REPEAT, Ⓢ- SIMULTANEOUS, and Ⓒ- CANCEL are located in the left margin of each interaction frame.

Code	Code Usage
Ⓡ- Repeat	If the interaction being observed continues without change or interruption, code Ⓡ is used in subsequent frames approximately every 5 seconds until the action is interrupted by another interaction, or stops. Ⓡ repeats the interaction from the frame above.
Ⓢ- Simultaneous	The simultaneous code is used to record inattention by a child or children while an adult-led activity is going on. It allows the observer to record what the child or children are doing, as well as the activity to which they should be attending.

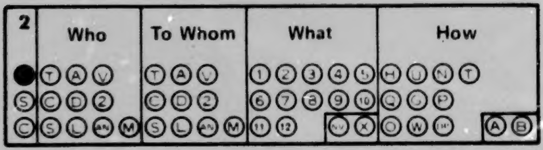
In child-focused observations, the simultaneous code is used to record the activity that the child is ignoring.

A child is listening to a math lesson:

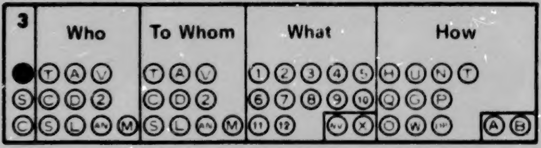

1
Who
To Whom
What
How

CT12A

He continues to listen for 10 seconds:

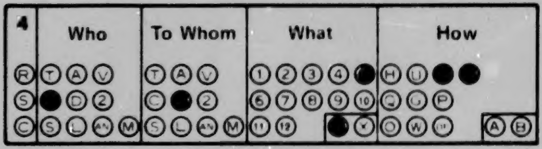

2
Who
To Whom
What
How

Ⓡ


3
Who
To Whom
What
How

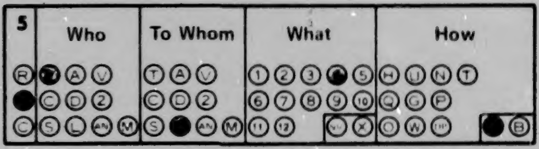
Ⓡ

The child starts to pull the hair of the girl sitting next to her:


4
Who
To Whom
What
How

CD5NVNT

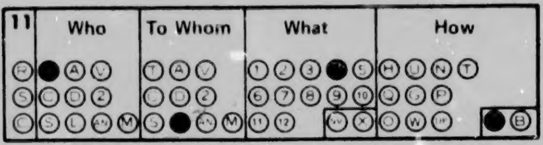
If the teacher continues with the math lesson while the child is pulling her neighbor's hair, the teacher's actions are coded and the Ⓢ is recorded with it to show the activity that the child is ignoring.


5
Who
To Whom
What
How

Ⓢ TL4A

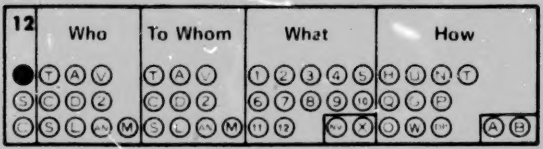
In the case of activity/adult-focused observations, the Simultaneous code is used to show inattention on the part of a Small or Large Group. It is not used to show inattention on the part of only one or two children within the larger group.

The teacher is giving a math lesson to a Large Group of children:

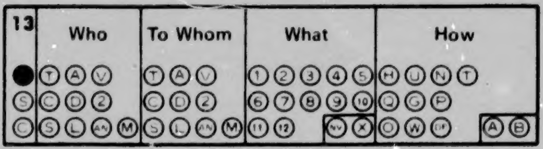

11
Who
To Whom
What
How

TL4A

She continues with her uninterrupted lecture (Ⓡ is coded every five seconds as she continues):

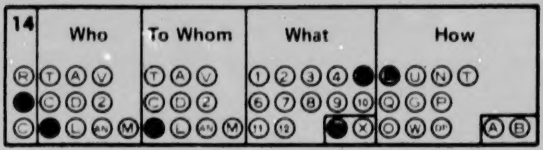

12
Who
To Whom
What
How

Ⓡ


13
Who
To Whom
What
How

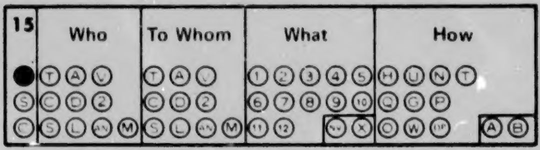
Ⓡ

When a small group starts giggling while the teacher continues lecturing, Code Ⓢ is used in the left margin of the next interaction block; then the new interaction (small group giggling) is coded in the same block to show the children's inattention:


14
Who
To Whom
What
How

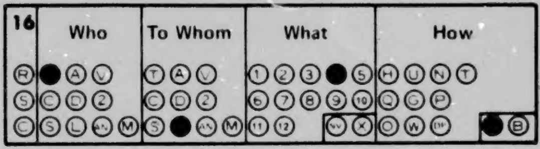
Ⓢ SS5NVH

Code	Code Usage
	If the dual activity of "teacher lecturing-children giggling" continues for more than five seconds, Code Ⓡ is used in the next interaction block(s) to show the continuation of the dual activities:

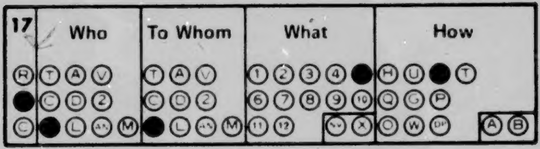

15
Who
To Whom
What
How

Ⓡ

If a different interruption occurs (e.g., small group of children arguing) during the same lecture, the first coding (TL4A) is returned to before the new interruption is coded:


16
Who
To Whom
What
How

TL4A

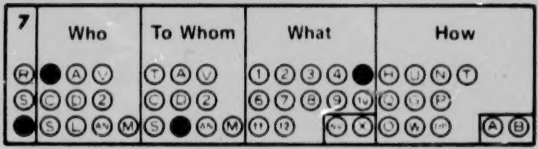

17
Who
To Whom
What
How

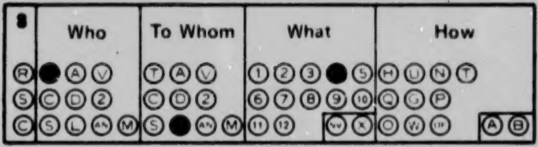
Ⓢ SS5N

Ⓒ - Cancel

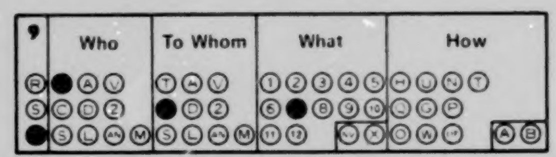
When a mistake is made in coding an interaction, Code Ⓒ is used in the left margin of the miscoded frame and the next frame is coded correctly.

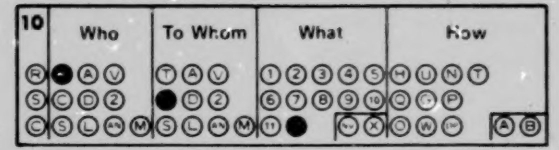
Teacher is lecturing to a large group. Observer mistakenly codes TL5. Code Ⓒ is used in that frame to show the error and Code TL4 is marked in the following frame:


7
Who
To Whom
What
How


8
Who
To Whom
What
How

Code	Code Usage
	Observer is coding an interaction. She forgets a code, is momentarily blank. She records Code Ⓒ and begins again, for example:

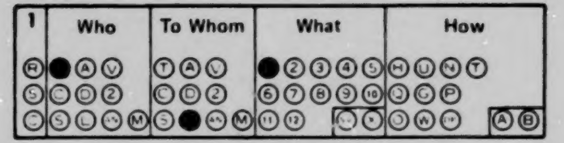

9
Who
To Whom
What
How


10
Who
To Whom
What
How

3. Examples of Coding the Five-Minute Observation

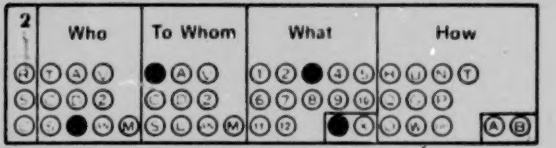
After the person to be observed has been identified and the adult participation, the activity, and the time started have been recorded in the Preamble, the observer should begin immediately to record the interactions in which the focus person is taking part. These interactions are recorded in the frames numbered 1 through 76, using the codes as defined on p. D-3. One frame is used for each interaction recorded. For example:

Teacher: "Please sit down, class."


1
Who
To Whom
What
How

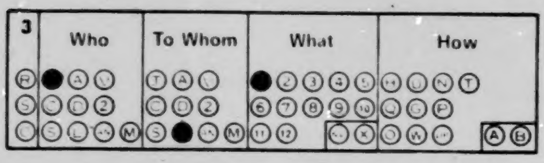
TL1

Class sits down as requested.


2
Who
To Whom
What
How

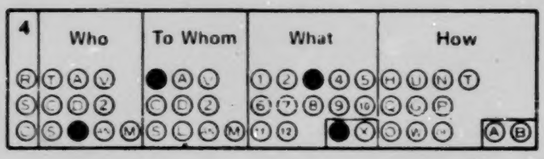
LT3NV

Teacher: "Open your books to page 43."


3
Who
To Whom
What
How

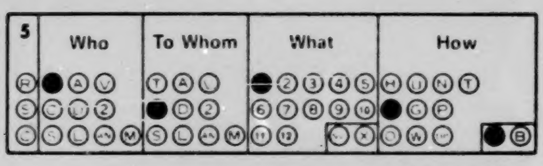
TL1

Class does as requested (opens books).


4
Who
To Whom
What
How

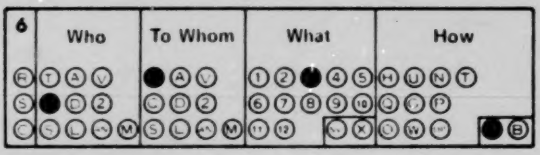
LT3NV

Teacher: "John, will you please read that page for us?"


5
Who
To Whom
What
How

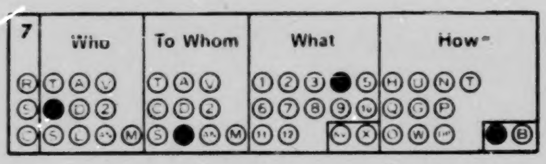
TC1QA

John reads as requested.


6
Who
To Whom
What
How

CT3A

John continues to read to the class.


7
Who
To Whom
What
How

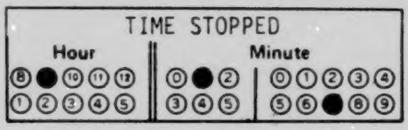
CL4A

An average of 5 seconds is expected for coding each interaction frame. Some observers may go somewhat faster or slower, but an effort should be made to enter 60 interactions during each FMO. The observer will develop his own pace.

It is important to remember to code complete interactions.

4. Time Stopped

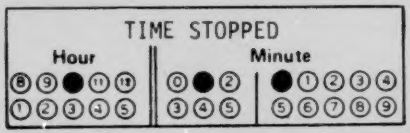
At the end of exactly 5 minutes, the observer must stop coding and write the time in the box marked "Time Stopped" on the last page of the observation sheet. For example, if coding is stopped at 9:17, the Time Stopped box would be filled in like this:



TIME STOPPED

Hour	Minute	
⑧ ● ⑩ ⑪ ⑫	⓪ ● ②	⓪ ① ② ③ ④
① ② ③ ④ ⑤	③ ④ ⑤	⑤ ⑥ ● ⑧ ⑨

If coding is stopped at 10:10, the Time Stopped box would be filled in like this:



TIME STOPPED

Hour	Minute	
⑧ ⑨ ● ⑪ ⑫	⓪ ● ②	● ① ② ③ ④
① ② ③ ④ ⑤	③ ④ ⑤	⑤ ⑥ ⑦ ⑧ ⑨

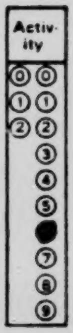
Although it is important that the observation be exactly 5 minutes, it is more important to be accurate in showing the actual times started and stopped.

5. Activity Change

The Activity Change box is filled in at the end of the FMO form only if the activity recorded in the Preamble has changed during the course of the FMO. Numbers in the Activity Change box refer to the numbers in the CCL. For example:

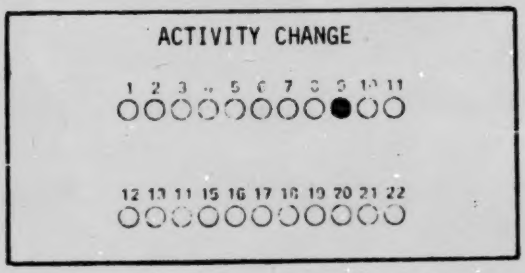
> Activity in the Preamble was CCL Item 6 (Arithmetic, Numbers, Math) shown in example A below. During the course of the FMO coding, the teacher changed the activity of the group to CCL Item 9 (Science, Natural World). The observer must code this change at the end of the observation, as shown in example B below.

A



Activity	
⓪	⓪
①	①
②	②
	③
	④
	⑤
	●
	⑦
	⑧
	⑨

B



ACTIVITY CHANGE

1	2	3	4	5	6	7	8	9	10	11
○	○	○	○	○	○	○	○	●	○	○

12	13	14	15	16	17	18	19	20	21	22
○	○	○	○	○	○	○	○	○	○	○

Appendix E

WEEKLY ROSTER LIST AND CLASSROOM OBSERVER DAILY LOG

APPENDIX E

WEEKLY ROSTER LIST AND CLASSROOM OBSERVER DAILY LOG

1. Weekly Roster List

All classroom observers were required to fill out a Weekly Roster List that recorded the following information:

Date--The date an observation was conducted.

School Name--The name of the school in which the observation was conducted on the date designated.

Teacher Name--The name of the teacher whose class was being observed on that day.

Teacher Number--The number assigned to the teacher and found on the label in the left-hand corner on the top front page of each observation booklet.

Grade--The grade level of the class being observed which appeared on the label of each booklet. If the grade level of the class differed from that on the label, it was noted on the booklets and on the Weekly Roster List.

FT-NFT--Indicated whether the class being observed was a Follow Through (FT) or a Non-Follow Through (NFT) class. This designation also appeared on the label in the upper left-hand corner of each observation booklet.

Observation--Referred to whether the observation day was activity/adult focus or individual child focus.

Booklet I.D. Number--The four-digit number found in the top right-hand corner of each red header booklet.

Number of FMOs Used--The number of 5-minute observations conducted each day.

Reliability Check - Date--The date the reliability check was done and the booklet I.D. number used.

Comments--When anything unusual occurred during an observation day, the observer was instructed to note it in the "Comments" section of the Weekly Roster. These comments, along with entries from the Classroom Observer Daily Log, served to reveal anomalies that might invalidate observation or justify its omission.

Number of Booklets Returned in this Box--This (in the upper right-hand corner) was filled out as soon as all observations for the week had been completed and the box made ready for shipment to SRI.

2. Classroom Observer Daily Log

Observers were each given a Classroom Observer Daily Log in which to record various kinds of information pertinent to their observations. The Log was divided into two main parts consisting of Section I, "Directory, Daily Log," and Section II, "Record of Materials and Activities."

Instructions for Section I were: "Please consider this booklet a daily journal. Carry it with you at all times so that you can have necessary phone numbers available and can make a complete record of contact with school and Follow Through personnel." (SRI staff names and phone numbers were listed in the Log as an aid to observers.) In this section, therefore, the observer recorded names of school personnel worked or talked with, their positions, their school affiliations, and their telephone numbers. The observer also cataloged meetings attended and topics discussed.

Section II was designed so that observers could record for each observed classroom all texts (with publisher name), materials used, and field trips or other activities done in conjunction with reading, math, social studies, and science. Texts and so on used in other subjects (such as arts and crafts or music) were described in a category called "Other." Observers also cataloged activities observed (as required on Activity/Adult focus days) in the order they occurred during the day, designating the particular activity by code as defined on the Classroom Check List. Some observers also noted the teacher's entire schedule for the day, as well as listing the activities specifically observed.

The last part of Section II was designed so that observers could answer particular questions pertaining to why certain classes had not been observed on a scheduled day, why the required number of observations had not been coded, or why requested activities had not been observed. A sample page, as printed in the Log, is shown below:

1. If the assigned class was not observed today, why not?

    a. field trips ______________________________

    b. could not contact teacher ______________________________

    c. teacher ill ______________________________

    d. I was ill ______________________________

    e. interruptions--specify ______________________________

    f. other (SRI contacted)--specify ______________________________

2. If the assigned number of FMOs were not observed today, tell why.

    a. field trips ______________________________

    b. teacher ill ______________________________

    c. I was ill ______________________________

    d. interruptions--specify ______________________________

    e. other (SRI contacted)--specify ______________________________

3. If the assigned number of Child Focus FMOs were not observed today, tell why.

   a. field trips ______________________________

   b. teacher ill ______________________________

   c. children ill ______________________________

   d. short day ______________________________

   e. interruptions--specify ______________________________

   f. other (SRI contacted)--specify ______________________________

4. If requested activities were not observed, tell why.

   a. didn't occur ______________________________

   b. occurred simultaneously with other activities ______________

   c. other ______________________________

Finally, blank pages were inserted at the end of the Log so that observers could record any other comments, problems or suggestions that occurred to them.

The reader must keep in mind that these reports are, for the most part, subjective. Time, noise level, and rejections by a teacher would be experienced differently by observers.

Appendix F

CLASSROOM OBSERVATION VARIABLE LIST FOR SPRING 1973

Appendix F

CLASSROOM OBSERVATION VARIABLE LIST FOR SPRING 1973*

Classroom Summary Information (CSI)

Variable No.	Description
1	Sponsor
2	Site
3	Center
4	Teacher
5	Pupil code
6	Reliability/regular observation
7	Grade
8	Observer Code
9	Date
10	Number of children enrolled
11	Number of children present
12	Number of teachers
13	Number of aides
14	Number of volunteers present
15	Child/teacher and aide ratio (Number of children over the number of teachers and aides)
16	Child/Adult Ratio (Number of children over the number of teachers, aides, and volunteers.)
17	Total class duration

Physical Environment Information (PEI)

18	Movable tables and chairs for seating
19	Stationary desks in rows
20	Assigned seating for at least part of the day
21	Children select their own seating locations
22	Teacher assigns children to groups
23	Children select their own work groups
24	Child selection of seating and work groups
25	Games, toys, play equipment present
26	Games, toys, play equipment used
27	Instructional materials present
28	Instructional materials used
29	Montessori, other educational toys present
30	Montessori, other educational toys used

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*See Appendix G for details concerning variable specifications.

PEI (continued)

31	Children's texts, workbooks present
32	Children's texts, workbooks used
33	Math/Science equipment, concrete objects present
34	Math/Science equipment, concrete objects used
35	Instructional charts present
36	Instructional charts used
37	Audio visual equipment present
38	Audio visual equipment used
39	General equipment, materials present
40	General equipment, materials used
41	Children's own products on display
42	Displays reflecting children's ethnicity
43	Photographs of the children present
44	Total number different resource categories coded "present" over three days
45	Total number different resource categories coded "used today" over three days
46	Number of COP's, adult focus
47	Number of COP's, child focus
48	Achievement charts present
49	Achievement charts used
50	Cooking and sewing supplies present
51	Cooking and sewing supplies used
52	Carpentry materials, large blocks present
53	Carpentry materials, large blocks used
54	Sandbox, water table present
55	Sandbox, water table used
56	Magazines present
57	Magazines used
58	Children's story books present
59	Children's story books used
60	Total number of CCL's

Classroom Check List (CCL)

A. Classroom Activities: Over three days, how is the children's time distributed?*

Variable No.	Distribution
61	Lunch, snack
62	Group time
63	Story, music, dancing
64	Arts, crafts
65	Guessing games, table games, puzzles

---

*These CCL Variables will be weighted proportions. See page F-11 for Weighting Scheme.

CCL (continued)

66	Numbers, math, arithmetic
67	Reading, alphabet, language development
68	Social studies, geography
69	Science, natural world
70	Sewing, cooking, pounding
71	Blocks, trucks
72	Dramatic play, dress-up
73	Active play
74	Practical skills acquisition
75	Observing (independent children only)
76	Social interaction
77	Unoccupied child
78	Discipline
79	Transitional activities
80	Classroom management
81	Out of room
82	Wide variety of activities, concurrent
83	Wide variety of activities, over one day
84	Approximate number of children in the classroom in any activity

B. Classroom Groupings: Overall activities, what percent of the time* is an adult in each of these situations?

Variable No.	Description
85	Teacher without children
86	Teacher with one child
87	Teacher with two children
88	Teacher with small group
89	Teacher with large group
90	Overall teacher occurrences
91	Aide without children
92	Aide with one child
93	Aide with two children
94	Aide with small group
95	Aide with large group
96	Overall aide occurrences
97	Volunteer without children
98	Volunteer with one child
99	Volunteer with two children
100	Volunteer with small group
101	Volunteer with large group
102	Overall volunteer occurrences
103	Adult without children
104	Adult with one child
105	Adult with two children

---

*See Weighting Scheme on page F-11.

CCL (continued)

106	Adult with small group
107	Adult with large group
108	Overall occurrences of adults
109	One child with any adult
110	Two children with any adult
111	Small group of children with any adult
112	Large group of children with any adult
113	Overall occurrence of children with any adult
114	One child independent
115	Two children independent
116	Small group of children independent
117	Large group of children independent
118	All children independent
119	Number of children in the classroom times the number of CCL's

C. Math Groupings: When math occurs, which percent of the time* is a child in each of these groupings?

Variable No.	Description
120	One child with teacher/Math
121	Two children with teacher/Math
122	Small group with teacher/Math
123	Large group with teacher/Math
124	One child with aide/Math
125	Two children with aide/Math
126	Small group with aide/Math
127	Large group with aide/Math
128	One child with volunteer/Math
129	Two children with volunteer/Math
130	Small group with volunteer/Math
131	Large group with volunteer/Math
132	One child with any adults/Math
133	Two children with any adults/Math
134	Small group with any adults/Math
135	Large group with any adults/Math
136	One child independent/Math
137	Two children independent/Math
138	Small group of children independent/Math
139	Large group of children independent/Math
140	Approximate number of children involved in Math for all days observed
141	Personalized instruction in Math (Var. 132 + 133)
142	All children independent/Math (Add Var. 136 through Var. 139)

---

*See Weighting Scheme for CCL Variables.

D. Reading Groupings: When reading occurs, what percent of the time* is a child in each of these groupings?

Variable No.	Description
143	One child with teacher/Reading
144	Two children with teacher/Reading
145	Small group with teacher/Reading
146	Large group with teacher/Reading
147	One child with aide/Reading
148	Two children with aide/Reading
149	Small group with aide/Reading
150	Large group with aide/Reading
151	One child with volunteer/Reading
152	Two children with volunteer/Reading
153	Small group with volunteer/Reading
154	Large group with volunteer/Reading
155	One child with any adults/Reading
156	Two children with any adults/Reading
157	Small group with any adults/Reading
158	Large group with any adults/Reading
159	One child independent/Reading
160	Two children independent/Reading
161	Small group of children independent/Reading
162	Large group of children independent/Reading
163	Approximate number of children involved in Reading for all days observed
164	Personalized instruction in reading (Var. 155 + 156)
165	All children independent/Reading (Add Var. 159 through Var. 162)

E. Social Studies Groupings: When social studies occurs, what percent of the time* is a child in each of these groupings?

Variable No.	Description
166	One child with teacher/Social Studies
167	Two children with teacher/Social Studies
168	Small group with teacher/Social Studies
169	Large group with teacher/Social Studies
170	One child with aide/Social Studies
171	Two children with aide/Social Studies
172	Small group with aide/Social Studies
173	Large group with aide/Social Studies
174	One child with volunteer/Social Studies
175	Two children with volunteer/Social Studies

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*See Weighting Scheme for CCL Variables.

CCL (continued)

176	Small group with volunteer/Social Studies
177	Large group with volunteer/Social Studies
178	One child with any adults/Social Studies
179	Two children with any adults/Social Studies
180	Small group with any adults/Social Studies
181	Large group with any adults/Social Studies
182	One child independent/Social Studies
183	Two children independent/Social Studies
184	Small group of children independent/Social Studies
185	Large group of children independent/Social Studies
186	Approximate number of children involved in Social Studies for all days observed

F. Science, natural world groupings: When science, natural world occurs, what percent of the time* is a child in each of these groupings?

Variable No.	Description
187	One child with teacher/Science
188	Two children with teacher/Science
189	Small group with teacher/Science
190	Large group with teacher/Science
191	One child with aide/Science
192	Two children with aide/Science
193	Small group with aide/Science
194	Large group with aide/Science
195	One child with volunteer/Science
196	Two children with volunteer/Science
197	Small group with volunteer/Science
198	Large group with volunteer/Science
199	One child with any adults/Science
200	Two children with any adults/Science
201	Small group with any adults/Science
202	Large group with any adults/Science
203	One child independent/Science
204	Two children independent/Science
205	Small group of children independent/Science
206	Large group of children independent/Science
207	Approximate number of children involved in Science for all days observed

---

*See Weighting Scheme for CCL Variables.

G. Arts, crafts groupings: When arts, crafts occurs, what percent of the time* is a child in each of these groupings?

Variable No.	Description
208	One child with teacher/Arts and Crafts
209	Two children with teacher/Arts and Crafts
210	Small group of children with teacher/Arts and Crafts
211	Large group of children with teacher/Arts and Crafts
212	One child with aide/Arts and Crafts
213	Two children with aide/Arts and Crafts
214	Small group of children with aide/Arts and Crafts
215	Large group of children with aide/Arts and Crafts
216	One child with volunteer/Arts and Crafts
217	Two children with volunteer/Arts and Crafts
218	Small group with volunteer/Arts and Crafts
219	Large group with volunteer/Arts and Crafts
220	One child with any adults/Arts and Crafts
221	Two children with any adults/Arts and Crafts
222	Small group of children with any adults/Arts and Crafts
223	Large group of children with any adults/Arts and Crafts
224	One child independent/Arts and Crafts
225	Two children independent/Arts and Crafts
226	Small group of children independent/Arts and Crafts
227	Large group of children independent/Arts and Crafts
228	Approximate number of children involved in Arts and Crafts for all days observed

H. Classroom Management: In what percent of CCL's do each of these occur?

Variable No.	Description
229	Teacher involved/Classroom Management
230	Aide involved/Classroom Management
231	Volunteer involved/Classroom Management

I. Social Interaction: In what percent of CCL's do each of these occur?

Variable No.	Description
232	Among adults/Social Interaction
233	Among adults and children/Social Interaction
234	Among children/Social Interaction
235	Between observer and children/Social Interaction

---

*See Weighting Scheme for CCL Variables.

J. Use of Materials in Academic Activities: In what percent of CCL's where an academic activity is occurring are each of these also coded?

Variable No.	Description
236	TV/Academic Activities
237	Audio visual equipment/Academic Activities
238	Exploratory materials/Academic Activities
239	Math or science equipment/Academic Activities
240	Texts, workbooks/Academic Activities
241	Puzzles, games/Academic Activities
242	Percent of CCL's in which an academic activity is occurring/Academic Activities

K. Longitudinal Variables (Proportion of CCL's in which activity occurred)

Variable No.	Description
243	Lunch, snack/Longitudinal
244	Group time/Longitudinal
245	Story, music, dancing/Longitudinal
246	Arts, crafts/Longitudinal
247	Guessing games, table games, puzzles/Longitudinal
248	Numbers, math, arithmetic/Longitudinal
249	Reading, alphabet, language development/Longitudinal
250	Social studies, geography/Longitudinal
251	Science, natural world/Longitudinal
252	Sewing, cooking, pounding/Longitudinal
253	Blocks, trucks/Longitudinal
254	Dramatic play, dress-up/Longitudinal
255	Active play/Longitudinal
256	Practical skills acquisition/Longitudinal
257	Teacher with one child, academic activities/Longitudinal
258	Aide with one child, academic activities/Longitudinal
259	Volunteer with one child, academic activities/Longitudinal
260	Children independent, academic activities/Longitudinal
261	Any adult with one child, any activity/Longitudinal
262	Average number of adults in the classroom/Longitudinal

WEIGHTING SCHEME FOR CCL VARIABLES

PROCEDURE FOR ESTABLISHING THE WEIGHTING FOR EACH CCL.

Let W = Number of one child occurrences;
Let X = Number of two children occurrences;
Let Y = Number of small group occurrences;
Let Z = Number of large group occurrences.

Let N = Number of children present on given day.
Allocate a weight of 1 to any occurrence of "one child"
Allocate a weight of 2 to any occurrence of "two children"
Let k = $N - W - 2X$. If $Z = 0$ and $Y = 0$, $W_S = 0$ and $W_L = 0$.

Where W_S is the weight for any occurrence of "small group" and W_L is the weight for any occurrence of "large group."

Weighting: If $Y \neq 0$ and $Z = 0$, set $W_S = \frac{k}{Y}$

If $Y = 0$ and $Z \neq 0$, set $W_L = \frac{k}{Z}$

Otherwise (if $Y \neq 0$ and $Z \neq 0$):

If $\frac{k - 5Y}{Z} \geq 9$, set $W_S = 5$ and $W_L = \frac{k - 5Y}{Z}$
Else if $\frac{k - 4Y}{Z} \geq 9$, set $W_S = 4$ and $W_L = \frac{k - 4Y}{Z}$
Otherwise, set $W_S = 3$ and $W_L = \max\left(0, \frac{k - 3Y}{Z}\right)$

PREAMBLE (PRE)

Variable No. Adult* Focus	Child* Focus	Description
A.		**Focus of FMO**
263a	302c	Teacher focus
264a	303c	Aide focus
265a	304c	Child focus
266a	305c	Group size: one or two children
267a	306c	Group size: small group
268a	307c	Group size: large group
B.		**Adult role**
269a	308c	Teacher directing
270a	309c	Teacher participating
271a	310c	Teacher observing
272a	311c	Teacher not involved
273a	312c	Aide directing
274a	313c	Aide participating
275a	314c	Aide observing
276a	315c	Aide not involved
C.		**Activity/General**
277a	316c	Average number of frames per FMO
278a	317c	Number of FMO's with lunch or snack as beginning activity
279a	318c	Number of FMO's with group time as beginning activity
280a	319c	Number of FMO's with story, music or dancing as beginning activity
281a	320c	Number of FMO's with arts or crafts as beginning activity
282a	321c	Number of FMO's with guessing games, table games or puzzles as beginning activity
283a	322c	Number of FMO's with numbers, math or arithmetic as beginning activity
284a	323c	Number of FMO's with reading, alphabet or language development as beginning activity
285a	324c	Number of FMO's with social studies or geography as beginning activity

---

*"a" indicates adult focus variable, "c" indicates child focus variable.

PRE (continued)

286a	325c	Number of FMO's with science or natural world as beginning activity
287a	326c	Number of FMO's with sewing, cooking or pounding as beginning activity
288a	327c	Number of FMO's with blocks or trucks as beginning activity
289a	328c	Number of FMO's with dramatic play or dress-up as beginning activity
290a	329c	Number of FMO's with active play as beginning activity
291a	330c	Number of FMO's with practical skills acquisition as beginning activity
292a	331c	Number of FMO's with observing (independent children only) as beginning activity
293a	332c	Number of FMO's with social interaction as beginning activity
294a	333c	Number of FMO's with unoccupied child as beginning activity
295a	334c	Number of FMO's with discipline as beginning activity
296a	335c	Number of FMO's with transitional activities as beginning activity
297a	336c	Number of FMO's with classroom management as beginning activity
298a	337c	Number of FMO's with out of room as beginning activity
299a	338c	Number of FMO's with unknown beginning activity
300a	339c	Number of FMO's which begin and end in math
301a	340c	Number of FMO's which begin and end in reading

Five-Minute Observation (FMO)

Variable No.		
Adult* Focus	Child* Focus	Description
341a	472c	Child to adult, verbal
342a	473c	Adult to child, verbal
343a	474c	Child to adult, all verbal except response
344a	475c	Individual child verbal interactions with adult
345a	476c	Verbal interactions among children
346a	477c	Child commands, requests, and direct questions, non-academic
347a	478c	Child commands, requests, and direct questions, academic
348a	479c	Child open-ended questions, non-academic
349a	480c	Child open-ended questions, academic
350a	481c	Child questions to adults
351a	482c	Adult commands, requests, and direct questions to groups of children, non-academic
352a	483c	Adult commands, requests, and direct questions to individual children, non-academic
353a	484c	Adult commands, requests, and direct questions to groups of children, academic
354a	485c	Adult commands, requests, and direct questions to individual children, academic
355a	486c	Adult open-ended questions to children, non-academic
356a	487c	Adult open-ended questions to children, academic
357a	488c	All adult questions to children
358a	489c	All children responses
359a	490c	Child responses, non-academic
360a	491c	Child responses, academic
361a	492c	Child responses to behavioral correction or reinforcement
362a	493c	Individual child responds to adult academic command, request, or direct questions
363a	494c	Child group responds to adult academic request or direct question
364a	495c	Adult responses to child requests or questions, academic
365a	496c	Adult responses to child requests or questions, non-academic
366a	497c	Adult responds to child question with open-ended question
367a	498c	Adult responds to child question with direct question
368a	499c	Child responses to adult open-ended questions

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*"a" indicates adult focus variable, "c" indicates child focus variable.

FMO (continued)

369a	500c	Child extended response, non-academic
370a	501c	Child extended response, academic
371a	502c	Child extended response to adult open-ended question
372a	503c	Child presenting information to a group
373a	504c	Adult instruction, non-academic
374a	505c	Adult instruction, academic
375a	506c	Adult instructs an individual child
376a	507c	Adult instructs a group
377a	508c	Child self-instruction
378a	509c	Child self-instruction, academic
379a	510c	Child self-instruction, objects
380a	511c	Child self-instruction, academic, with objects
381a	512c	Child instructing another child
382a	513c	Child task persistence
383a	514c	Two children working together, using concrete objects
384a	515c	Small group working together, using concrete objects
385a	516c	Social interaction among children
386a	517c	Child task-related comments to children
387a	518c	Child general comments to adults
388a	519c	Child task-related comments to adults
389a	520c	Adult general comments to children
390a	521c	Adult task-related comments to children
391a	522c	Child acknowledgment
392a	523c	Child praise
393a	524c	Child corrective feedback
394a	525c	All adult acknowledgment to children
395a	526c	Adult acknowledgment to children, academic
396a	527c	Adult acknowledgment to children, behavior
397a	528c	Adult acknowledgment, other task-related
398a	529c	All adult praise to children
399a	530c	Adult reinforcement with token, academic
400a	531c	Adult reinforcement with token, behavior
401a	532c	Adult reinforcement with token, other task-related
402a	533c	Adult praise, academic
403a	534c	Adult praise, behavior
404a	535c	Adult praise, other task-related
405a	536c	All adult corrective feedback to children
406a	537c	Adult positive corrective feedback, academic
407a	538c	Adult negative corrective feedback, academic
408a	539c	Adult positive corrective feedback, behavior
409a	540c	Adult negative corrective feedback, behavior
410a	541c	Adult positive corrective feedback, other task-related

FMO (continued)

411a	542c	Adult negative corrective feedback, other task-related
412a	543c	Adult feedback to child response to adult academic command or question
413a	544c	Child not responding to adults
414a	545c	Adult not responding to child
415a	546c	Child waiting
416a	547c	Children attentive to adults, non-academic
417a	548c	Children attentive to adults, academic
418a	549c	Adults attentive to children, non-academic
419a	550c	Adults attentive to children, academic
420a	551c	Adults attentive to a small group
421a	552c	Adults attentive to individual children
422a	553c	Positive behavior among children
423a	554c	Positive behavior, adults to children
424a	555c	Positive behavior, children to adults
425a	556c	Child expressions of unhappiness
426a	557c	Adult expressions of unhappiness
427a	558c	Negative behavior among children
428a	559c	Negative behavior, adults to children
429a	560c	Negative behavior, children to adults
430a	561c	Total adult affect
431a	562c	Total child affect
432a	563c	Adult punishment of children
433a	564c	Child statements of self-worth
434a	565c	Dramatic play, pretending
435a	566c	Total academic verbal interactions
436a	567c	Total interactions, behavior control
437a	568c	Children engaged in mutual activity
438a	569c	Adult communication or attention focus, one child
439a	570c	Adult communication or attention focus, two children
440a	571c	Adult communication or attention focus, small group
441a	572c	Adult communication or attention focus, large group
442a	573c	All child nonverbal
443a	574c	Child movement
444a	575c	Adult movement
445a	576c	Adult leaving the room
446a	577c	Child attentive to machine
447a	578c	Adult neutral corrective feedback, task-related
448a	579c	Adult neutral corrective feedback, behavior
449a	580c	Adult neutral corrective feedback, academic
450a	581c	All child open-ended questions (Var. 348a + 349a and/or Var. 479c + 480c)
451a	582c	Adult academic commands, requests, and direct questions to children (Var. 353a + 354a and/or Var. 484c + 485c)
452a	583c	Adult open-ended questions to children (Var. 355a + 356a and/or Var. 486c + 487c)
453a	584c	Adult response to child's question with a question (Var. 366a + 367a and/or Var. 497c + 498c)
454a	585c	Child's extended response to questions (Var. 369a + 370a + 371a and/or Var. 500c + 501c + 502c)

FMO (continued)

455a	586c	All adult instruction (Var. 373a + 374a and/or Var. 504c + 505c)
456a	587c	All child task-related comments (Var. 386a + 388a and/or Var. 517c + 519c)
457a	588c	All adult positive corrective feedback (Add Vars. 406a, 408a, 410a and/or 537c, 539c, 541c)
458a	589c	All adult negative corrective feedback (Add Vars. 407a, 409a, 411a and/or 538c, 540c, 542c)
459a	590c	All adult praise for academic responses (Var. 399a + 402a and/or Var. 530c + 533c)
460a	591c	All child positive affect (Var. 422a + 424a and/or Var. 553c + 555c)
461a	592c	All child negative affect (Var. 427a + 429a and/or Var. 558c + 560c)
462a	593c	All positive behavior (Add Vars. 422a, 423a, 424a and/or Vars. 553c, 554c, 555c)
463a	594c	All negative behavior (Add Vars. 427a, 428a, 429a and/or Vars. 558c, 559c, 560c)
464a	595c	Child attentive (Add Vars. 416a, 417a, 446a and/or Vars. 547c, 548c, 577c)
465a	596c	Adult feedback to children for behavior (Add Vars. 396a, 403a, 408a, 409a, 448a and/or Vars. 527c, 534c, 539c, 540c, 579c)
466a	597c	Child self-esteem (Add Vars. 392a, 393a, 433a, 454a and/or 523c, 524c, 564c, 585c)
467a	598c	Child cooperation (Add Vars. 381a, 386a, 437a and/or Vars. 512c, 517c, 568c)
468a	599c	Child self-instruction, non-academic (Var. 377a - 378a and/or Var. 508c - 509c)
469a	600c	All adult reinforcement with tokens (Add Vars. 399a, 400a, 401a and/or Vars. 530c, 531c, 532c)
470a	601c	All adult neutral corrective feedback (Add Vars. 447a, 448a, 449a and/or 578c, 579c, 580c)
471a	602c	Adults attentive to large group (Subtract sum of Vars. 420a and 421a from sum of Vars. 418a and 419a and/or subtract sum of Vars. 551c and 552c from sum of Vars. 549c and 550c)

Appendix G

CLASSROOM OBSERVATION VARIABLE SPECIFICATIONS

Appendix G

CLASSROOM OBSERVATION VARIABLE SPECIFICATIONS

There are five categories of classroom observation variables:

I-Classroom Summary Information (CSI)
II-Physical Environment Information (PEI)
III-Classroom Check List (CCL)
IV-Preamble (PRE)
V-Five Minute Observation (FMO).

The computations of the variables in each category are based, for the most part, on information obtained from the corresponding section of the Classroom Observation Instrument. The variables are numbered consecutively through the list. In the text the variable number will usually be accompanied by one of the abbreviations given above to indicate the category that the variable came from. The variable specifications given here are how the variable was computed at the classroom level, the level of the unit of the analysis for most of the current evaluation.

1. Classroom Summary Information (CSI)

One CSI is completed per day of observation.

Variable No.	Description		
1	Sponsor code		Classroom identification data obtained from the first day of observation.
2	Site code		
3	Center code		
4	Teacher code		
5	--		Not used in the analysis.
6	--		
7	Grade	Either 1 or 3	Obtained from the first day of observation.
8	Observer code		
9	--		Not used in the analysis.
10	Number of children enrolled		Averaged over days of observation.
11	Number of children present		
12	Number of teachers		
13	Number of aides		
14	Number of volunteers present		

Variable No.	Description	
15	Child/teacher and aide ratio (Number of children divided by number of teachers and aides)	Computed for each day and then averaged over days of observation.
16	Child/adult ratio (Number of children divided by number of teachers, aides, and volunteers)	
17	Total class duration	Averaged over days of observation.

2. Physical Environment Information (PEI)

One PEI is completed per day of observation.

Variable No.	Description	
18	Movable tables and chairs for seating	1 if marked 1 on any day (indicating "yes" or "present"); 0 otherwise.
19	Stationary desks in rows	
20	Assigned seating for at least part of the day	
21	Children select their own seating locations	
22	Teacher assigns children to groups	
23	Children select their own work groups	
24	Child selection of seating and work groups	(1-V20) + V21 + (1-V22) + V23 Range: 0-4.

Unless otherwise stated below, each of the remaining PEI variables was coded as follows:

If "present" is in the variable name, the variable had a value of 1 if the corresponding item on the PEI had been marked "present" or "used" on any day of observation; otherwise, the variable had a value of 0.

If "used" is in the variable name, the variable had a value of 1 if the corresponding item on the PEI had been marked "used today" on any day of observation; otherwise, the variable had a value of 0.

Variable No	Description	
25	Games, toys, play equipment present	Each item under this heading for the PEI* was scored as specified above and the scores were summed across items. Range: 0-10. See specification of variables 25, 26. Range: 0-4.
26	Games, toys, play equipment used	
27	Instructional materials present	
28	Instructional materials used	
29	Montessori, other educational toys present	
30	Montessori, other educational toys used	
31	Children's texts, workbooks present	
32	Children's texts, workbooks used	
33	Math/Science equipment, concrete objects present	
34	Math/Science equipment, concrete objects used	
35	Instructional charts present	
36	Instructional charts used	
37	Audio visual equipment present	See specification of variables 25, 26. Range: 0-3.
38	Audio visual equipment used	
39	General equipment, materials present	See specification of variables 25, 26. Range: 0-12.
40	General equipment, materials used	
41	Children's own products on display	Coded as "present" variable.
42	Displays reflecting children's ethnicity	Coded as "present" variable.
43	Photographs of the children present	

---

*See Appendix C, The Classroom Observation Instrument.

Variable N	Description	
44	Total number of different resource categories coded "present" over 3 days	V25 + V27 + V37 + V39.
45	Total number of different resource categories coded "used today" over 3 days	V26 + V28 + V38 + V40.
46	Number of COPs--adult focus	The number of COPs used in the computations of the FMO variables on adult/activity focus.*
47	Number of COPs--child focus	The number of COPs used in the computations of the FMO variables on child focus.*
48	Achievement charts present	
49	Achievement charts used	
50	Cooking and sewing supplies present	
51	Cooking and sewing supplies used	
52	Carpentry materials, large blocks present	
53	Carpentry materials, large blocks used	
54	Sandbox, water table present	
55	Sandbox, water table used	
56	Magazines present	
57	Magazines used	
58	Children's story books present	
59	Children's story books used	
60	Total number of CCLs	The number of CCLs used in the computation of the CCL variables.

---

*These do not appear in the PEI, but were calculated in the process of creating the classroom-level data tape.

3. Classroom Check List (CCL)

Approximately 20 CCLs are completed per day of observation. The data from the CCL consists of the number of configurations of adults and children that were engaged in a particular activity at the time the CCL was completed. A configuration is defined by the number of children (either one child, two children, small group, or large group) and the adults involved, if any (either teacher, aide, volunteer, or independent, with independent indicating that no adults are involved). Since the number of children involved in any given activity can only be determined up to a small group or large group designation, a weighting scheme was devised to obtain, for each CCL separately, the approximate size of small and large groups when they occurred.

The procedure for establishing the approximate size of the groups for a CCL was as follows:

> The number of configurations or groups observed was tallied for each group size across all activities.
>
> Let W = Number of one-child configurations
> X = Number of two-children configurations
> Y = Number of small group configurations
> Z = Number of large group configurations
>
> Let N = Number of children present for the day (Taken from the Classroom Summary Information item "Number of children present today.")
>
> A weight of 1 was allocated to any occurrence of "one child."
>
> A weight of 2 was allocated to any occurrence of "two children."
>
> Let $k = N-W-2X$ This represents the number of children who were in either a small or large group.
>
> If $Y > 0$ and $Z = 0$ (i.e., there were no large groups), then a weight of k/Y was allocated to each small group.
>
> If $Y = 0$ and $Z > 0$ (i.e., there were no small groups), then a weight of k/Z was allocated to each small group.
>
> When $Y > 0$ and $Z > 0$ (i.e., there were both large and small groups):
> if $(k-5Y)/Z \geq 9$, then a weight of 5 was allocated to each small group and $(k-5Y)/Z$ was allocated to each large group;
> if $(k-4Y)/Z \geq 9$, then a weight of 4 was allocated to each small group and $(k-4Y)/Z$ was allocated to each large group;
> otherwise, a weight of 3 was allocated to each small group, and $(k-3Y)/Z$ was allocated to each large group.
>
> In this last case if, because of an error in observation or coding, $K < 3Y$, a weight of zero was allocated to large groups.

This algorithm assigns 5 children per small group unless this will be inconsistent with the assignment of number of children in large groups, which must be at least 9. If there is an inconsistency, the assignment to small groups is dropped to 4 and the number of children assigned to large groups is checked again. If the inconsistency still remains, a value of 3 is assigned to the number of children in a small group.

a. Classroom Activities

The approximate number of children engaged in a given activity on a particular CCL will be

$$n_1 + 2n_2 + W_s \cdot n_s + W_L \cdot n_L$$

where W_S and W_L are the approximate sizes of small and large groups, respectively, and n_1, n_2, n_S, and n_L are the number of one-child, two-children, small group, and large group configurations that are engaged in the particular activity. Variables 61 through 81 are defined as:

$$100 \times \frac{\text{Sum over all CCLs of the approximate number of children in the given activity}}{\text{Sum over all CCLs of the number of children present}}$$

Each of these variables represents the percent of "child time" that is spent in a given activity. The sum of variables 61 through 81 will be 100.

Variable No.	Description
61	Lunch, snack
62	Group time
63	Story, music, dancing
64	Arts, crafts
65	Guessing games, table games, puzzles
66	Numbers, math, arithmetic
67	Reading, alphabet, language development
68	Social studies, geography
69	Science, natural world
70	Sewing, cooking, pounding
71	Blocks, trucks
72	Dramatic play, dress-up
73	Active play
74	Practical skills acquisition
75	Observing (independent children only)
76	Social interaction

Variable No.	Description
77	Unoccupied child
78	Discipline
79	Transitional acitivities
80	Classroom management
81	Out of room

Variables 82 and 83 are measures of the number of different activities that occur. Only the first fourteen activities as listed on the CCL are included.

82 Wide Variety of activities, concurrent.

For each CCL, each activity gets a score of 1 if any child was engaged in the activity; otherwise a score of zero is assigned. The scores for the activities are summed for each CCL and then the average per CCL is obtained. Range 0-14.

83 Wide variety of activities, over one day.

For each day, each activity gets a score of 1 if any child is observed to engage in the activity; otherwise a score of zero is assigned. The scores for the activities are summed for each day and then the average per day is obtained.
Range: 0-14.

84 Approximate number of children in the classroom in any activity.

The total weight allocated for each day is defined as the number of children present multiplied by the number of CCLs completed for the day. Variable 84 is defined as the sum of the total weight across days divided by the total number of CCLs observed (Var. 60). It should correspond closely to the average number of children present.

b. Classroom Groupings

This section contains variables that describe the percent of "time" spent by adults and children in particular grouping patterns. Variables 85 through 108 relate to the amount of time adults spend in particular groupings. Variables 109 through 118 relate to the amount of time children are found in particular groupings.

The set of variables dealing with adults consists of four subsets dealing with the teacher, the aide, the volunteer, and all adults, respectively. Each subset consists of six variables. The specifications for each subset are as follows:

> The number of occurences of the specified adult (or adults) in each specified grouping pattern (without children, one child, two children, small group, and large group) is tallied across all CCLs. The tallies are summed across grouping patterns to yield the overall occurrences (Variables 90, 96, 102, or 108). The tally for

each specified grouping pattern is then divided by the overall occurrences and then multiplied by 100 to yield the percent of overall occurrences in each particular grouping pattern. If the number of overall occurrences equals zero, then the percent of occurrences for each particular grouping pattern is set to zero.

Variable No.	Description
85	Teacher without children
86	Teacher with one child
87	Teacher with two children
88	Teacher with small group
89	Teacher with large group
90	Overall teacher occurrences
91	Aide without children
92	Aide with one child
93	Aide with two children
94	Aide with small group
95	Aide with large group
96	Overall aide occurrences
97	Volunteer without children
98	Volunteer with one child
99	Volunteer with two children
100	Volunteer with small group
101	Volunteer with large group
102	Overall volunteer occurrences
103	Adult without children
104	Adult with one child
105	Adult with two children
106	Adult with small group
107	Adult with large group
108	Overall occurrences of adults

The set of variables dealing with children employs the weighting scheme described at the beginning of the CCL section on p. G-5. The specifications for Variables 109 through 116 are as follows:

> The approximate numbers of children who are observed in the given grouping pattern are summed across all CCLs. This sum is then divided by the total weight and multiplied by 100 to yield the percent of "child time" spent in a given grouping pattern. The total weight is defined as the sum across CCLs of the number of children present. The total weight is given in Variable 119.

Variable No.	Description	
109	One child with any adult	
110	Two children with any adult	
111	Small group of children with any adult	
112	Large group of children with any adult	
113	Overall occurrence of children with any adult	
114	One child independent	
115	Two children independent	
116	Small group of children independent	
117	Large group of children independent	
118	All children independent	Variables 114 + 115 + 116 + 117
119	Number of children in the classroom times the number of CCLs	

The specifications of the variables for Math groupings, Reading groupings, Social Studies groupings, Science and Natural World groupings, and Arts, Crafts groupings are similar to those for Classroom groupings. The weighting scheme described on p. G-5 is used. The specifications for the first 21 variables in each of these sections are as follows:

> The approximate number of children who are observed in the given grouping pattern in the given activity are summed across all CCLs. This sum is then divided by the total weight for the given activity and multiplied by 100 to yield the percent of "child time" spent in a given grouping pattern when the given activity is occurring.
>
> The total weight for the given activity is computed by summing across CCLs the approximate number of children engaged in the activity. The variable "Approximate number of children involved in given activity for all days observed" is this total weight (Variables 140, 163, 186, 207, and 228).
>
> Note that the variables in Sections C through G indicate how much of a grouping pattern is used when a given activity is occurring.

They do not reflect the amount of the activity that is observed to occur. The percent of "child time" spent in each activity was given in Part 3-a.

c. Math Groupings

Variable No.	Description	
120	One child with teacher/Math	See text in Part 3-a.
121	Two children with teacher/Math	
122	Small group with teacher/Math	
123	Large group with teacher/Math	
124	One child with aide/Math	
125	Two children with aide/Math	
126	Small group with aide/Math	
127	Large group with aide/Math	
128	One child with volunteer/Math	
129	Two children with volunteer/Math	
130	Small group with volunteer/Math	
131	Large group with volunteer/Math	
132	One child with any adults/Math	
133	Two children with any adults/Math	
134	Small group with any adults/Math	
135	Large group with any adults/Math	
136	One child independent/Math	
137	Two children independent/Math	
138	Small group of children independent/Math	
139	Large group of children independent/Math	
140	Approximate number of children involved in Math--all days observed	
141	Personalized instruction in Math	Var. 132 + 133
142	All children independent/Math	Var. 136 + 137 + 138 + 139

d. Reading Groupings

Variable No.	Description	
143	One child with teacher/Reading	See text in Part 3-a.
144	Two children with teacher/Reading	
145	Small group with teacher/Reading	
146	Large group with teacher/Reading	
147	One child with aide/Reading	
148	Two children with aide/Reading	
149	Small group with aide/Reading	
150	Large group with aide/Reading	
151	One child with volunteer/Reading	
152	Two children with volunteer/Reading	
153	Small group with volunteer/Reading	
154	Large group with volunteer/Reading	
155	One child with any adults/Reading	
156	Two children with any adults/Reading	
157	Small group with any adults/Reading	
158	Large group with any adults/Reading	
159	One child independent/Reading	
160	Two children independent/Reading	
161	Small group of children independent/Reading	
162	Large group of children independent/Reading	
163	Approximate number of children involved in Reading--all days observed	
164	Personalized instruction in Reading	Var. 155 + 156
165	All children independent/Reading	Var. 159 + 160 + 161 + 162

e. Social Studies Groupings

Variable No.	Description	
166	One child with teacher/Social Studies	See text in Part 3-a.
167	Two children with teacher/Social Studies	
168	Small group with teacher/Social Studies	
169	Large group with teacher/Social Studies	
170	One child with aide/Social Studies	
171	Two children with aide/Social Studies	
172	Small group with aide/Social Studies	
173	Large group with aide/Social Studies	
174	One child with volunteer/Social Studies	
175	Two children with volunteer/Social Studies	
176	Small group with volunteer/Social Studies	
177	Large group with volunteer/Social Studies	
178	One child with any adults/Social Studies	
179	Two children with any adults/Social Studies	
180	Small group with any adults/Social Studies	
181	Large group with any adults/Social Studies	
182	One child independent/Social Studies	
183	Two children independent/Social Studies	
184	Small group of children independent/Social Studies	
185	Large group of children independent/Social Studies	
186	Approximate number of children involved in Social Studies--all days observed	

f. Science, Natural World Groupings

Variable No.	Description	
187	One child with teacher/Science	See text in Part 3-a.
188	Two children with teacher/Science	
189	Small group with teacher/Science	
190	Large group with teacher/Science	
191	One child with aide/Science	
192	Two children with aide/Science	
193	Small group with aide/Science	
194	Large group with aide/Science	
195	One child with volunteer/Science	
196	Two children with volunteer/Science	
197	Small group with volunteer/Science	
198	Large group with volunteer/Science	
199	One child with any adults/Science	
200	Two children with any adults/Science	
201	Small group with any adults/Science	
202	Large group with any adults/Science	
203	One child independent/Science	
204	Two children independent/Science	
205	Small group of children independent/Science	
206	Large group of children independent/Science	
207	Approximate number of children involved in Science--all days observed	

g. Arts, Crafts Groupings

Variable No.	Description	
208	One child with teacher/Arts and Crafts	See text in Part 3-a.
209	Two children with teacher/Arts and Crafts	
210	Small group of children with teacher/Arts and Crafts	
211	Large group of children with teacher/Arts and Crafts	
212	One child with aide/Arts and Crafts	
213	Two children with aide/Arts and Crafts	
214	Small group of children with aide/Arts and Crafts	
215	Large group of children with aide/Arts and Crafts	
216	One child with volunteer/Arts and Crafts	
217	Two children with volunteer/Arts and Crafts	
218	Small group of children with volunteer/Arts and Crafts	
219	Large group of children with volunteer/Arts and Crafts	
220	One child with any adults/Arts and Crafts	
221	Two children with any adults/Arts and Crafts	
222	Small group with any adults/Arts and Crafts	
223	Large group of children with any adults/Arts and Crafts	
224	One child independent/Arts and Crafts	
225	Two children independent/Arts and Crafts	
226	Small group of children independent/Arts and Crafts	
227	Large group of children independent/Arts and Crafts	
228	Approximate number of children involved in Arts/Crafts--all days observed	

h. Classroom Management

Variable No.	Description	
229	Teacher involved/Classroom Management	$100 \times \frac{\text{Number of CCLs where given adult is engaged in classroom management}}{\text{Total number of CCLs}}$
230	Aide involved/Classroom Management	
231	Volunteer involved/Classroom Management	

i. Social Interaction

Variable No.	Description	
232	Among adults/Social Interaction	$100 \times \frac{\text{Number of CCLs where given subjects are engaged in social interaction}}{\text{Total number of CCLs}}$
233	Among adults and children/Social Interaction	
234	Among children/Social Interaction	
235	Between observer and children/Social Interaction	

j. Use of Materials in Academic Activities

Variable No.	Description	
236	TV/Academic activities	$100 \times \frac{\text{Number of CCLs where given material was used}}{\text{Number of CCLs where at least one child was engaged in an academic activity*}}$
237	Audio visual equipment/Academic activities	
238	Exploratory materials/Academic activities	
239	Math or science equipment/Academic activities	
240	Texts, workbooks/Academic activities	
241	Puzzles, games/Academic activities	
242	Percent CCLs in which an academic activity is occurring	$100 \times \frac{\text{Number of CCLS where at least one child was engaged in an academic activity}}{\text{Number of CCLS}}$

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*Academic activities include activity categories 6 through 9 on the CCL: Numbers, math, arithmetic; Reading, alphabet, language development; Social Studies, geography; Science, natural world.

k. Longitudinal Variables

These variables had the same definitions as identically named variables in the Follow Through Program Classroom Observation Evaluation 1971-72. They are included for the sake of continuity with past studies and for the sake of comparison with variables newly defined in the current report.

Variable No.	Description	
243	Lunch, snack/Longitudinal	$\frac{\text{Number of CCLs where at least one child is engaged in activities}}{\text{Total number of CCLs}}$
244	Group time/Longitudinal	
245	Story, music, dancing/Longitudinal	
246	Arts, crafts/Longitudinal	
247	Guessing games, table games, puzzles/ Longitudinal	
248	Numbers, math, arithmetic/Longitudinal	
249	Reading, alphabet, language development/ Longitudinal	
250	Social studies, geography/Longitudinal	
251	Science, natural world/Longitudinal	
252	Sewing, cooking, pounding/Longitudinal	
253	Blocks, trucks/Longitudinal	
254	Dramatic play, dress-up/Longitudinal	
255	Active play/Longitudinal	
256	Practical skills acquisition/Longitudinal	

Variables 257 through 261 indicate the average frequency per CCL of the named grouping:

Variable No.	Description
257	Teacher with one child, academic activities[*] Longitudinal
258	Aide with one child, academic activities[*]/Longitudinal
259	Volunteer with one child, academic activities/Longitudinal
260	Children independent, academic activities[*]/Longitudinal

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[*] Academic activities include activity categories 6 through 9 on the CCL: Numbers, math, arithmetic; Reading, alphabet, language development; Social Studies, geography; Science, natural world.

For Variable 260, the following weighting scheme was used:

Each "one child" occurrence is weighted by 1;
Each "two children" occurrence is weighted by 2;
Each "small group" occurrence is weighted by 5;
Each "large group" occurrence is weighted by 10.

Variable No.	Description	
261	Any adult with one child, any activity/ Longitudinal	Averaged over CCLs.
262	Average number of adults in the classroom/Longitudinal	

In Sections 4 and 5, each PRE and FMO variable name corresponds to two variables: one based on the adult-focused data and the other based on the child-focused data. The specification of one of these variables is the same for both sets of data, but the focus of observation may make the interpretation of the meaning of the variable quite different. See Appendix D, "Operational Definitions of the Five-Minute Observation Codes," for changes in the operational definitions between the two types of observations.

4. Preamble (PRE)

a. Focus of FMO

Variable No.			
Adult* Focus	Child* Focus	Description	
263a	302c	Teacher focus	Percent of FMOs with the given person as focus of observation.
264a	303c	Aide focus	
265a	304c	Child focus	
266a	305c	Group size: one or two children	Percent of FMOs where the focus person is in a grouping of the given size.
267a	306c	Group size: small group	
268a	307c	Group size: large group	

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*"a" indicates that the value of the variable is based on adult-focus observations.
"c" indicates that the value of the variable is based on child-focus observations.

b. Adult Role

Variable No.			
Adult* Focus	Child* Focus	Description	
269a	308c	Teacher directing	Percent of FMOs where the given adult is in the given role at the time of observation.
270a	309c	Teacher participating	
271a	310c	Teacher observing	
272a	311c	Teacher not involved	
273a	312c	Aide directing	
274a	313c	Aide participating	
275a	314c	Aide observing	
276a	315c	Aide not involved	

c. Activity/General

The specifications of the following variables should be clear from the variable name.

Variable No.		
Adult* Focus	Child* Focus	Description
277a	316c	Average number of frames per FMO
278a	317c	Number of FMOs with lunch or snack as beginning activity
279a	318c	Number of FMOs with group time as beginning activity
280a	319c	Number of FMOs with story, music or dancing as beginning activity
281a	320c	Number of FMOs with arts or crafts as beginning activity
282a	321c	Number of FMOs with guessing and table games or puzzles as beginning activity
283a	322c	Number of FMOs with numbers, math or arithmetic as beginning activity
284a	323c	Number of FMOs with reading, alphabet or language development as beginning activity

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*"a" indicates that the value of the variable is based on adult-focus observations.
"c" indicates that the value of the variable is based on child-focus observations.

Variable No.		
Adult* Focus	Child* Focus	Description
285a	324c	Number of FMOs with social studies or geography beginning activity
286a	325c	Number of FMOs with science or natural world as beginning activity
287a	326c	Number of FMOs with sewing, cooking or pounding as beginning activity
288a	327c	Number of FMOs with blocks or trucks as beginning activity
289a	328c	Number of FMOs with dramatic play or dress-up as beginning activity
290a	329c	Number of FMOs with active play as beginning activity
291a	330c	Number of FMOs with practical skills acquisition as beginning activity
292a	331c	Number of FMOs with observation as beginning activity (independent children only)
293a	332c	Number of FMOs with social interaction as beginning activity
294a	333c	Number of FMOs with unoccupied child as beginning activity
295a	334c	Number of FMOs with discipline as beginning activity
296a	335c	Number of FMOs with transitional activities as beginning activity
297a	336c	Number of FMOs with classroom management as beginning activity
298a	337c	Number of FMOs with out of room as beginning activity
299a	338c	Number of FMOs with unknown beginning activity
300a	339c	Number of FMOs which begin and end in math
301a	340c	Number of FMOs which begin and end in reading

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*"a" indicates that the value of the variable is based on adult-focus observations.
"c" indicates that the value of the variable is based on child-focus observations.

5. Five Minute Observation (FMO)

Each FMO variable is defined by a specified set of frames* or sequence of frames said to be acceptable. The value of an FMO variable for a given COP is the number of acceptable frames, or frame sequences, that were observed. The value of an FMO variable at the classroom level is the average across all COPs with the indicated focus of observation. The variable specifications that follow list each FMO variable along with a description of the frames that are acceptable. The acceptable frames are described by lists of acceptable, not acceptable, and necessary codes for each segment of the frame. A dash under any segment indicates that any code is acceptable.

For the Repeat, Simultaneous segment the codes listed are those that are acceptable. Unless stated otherwise, a blank (i.e., no code) is also acceptable.

For the Who, To Whom, and What segments. the codes that are listed are those that are acceptable. A blank (i.e., no code) is not acceptable in any of these segments.

For the Nonverbal and Motion and How segments, the codes listed either must be present or must not be present. An asterisk following a code indicates that it must be present. A "not" preceding a list of codes indicates that none of the codes listed may be present. Other codes not listed are acceptable. A blank is acceptable unless a code is listed with an asterisk.

The abbreviations for the codes used in the specifications are as follows:

(1) Repeat, Simultaneous

R = Repeat
S = Simultaneous

(2) Who

T = Teacher
A = Aide
V = Volunteer
C = Child
D = Different child
2 = Two children
S = Small group
L = Large group
AN = Animal
M = Machine

(3) To Whom

Same as Who

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[*] See Chapter II for a description of how the FMO is filled out and Appendix D for the operational definitions of the codes that make up a frame.

(4) What

1 = Command or request
2 = Open-ended question
3 = Response
4 = Instruction, explanation
5 = General comments, general action
6 = Task related comments
7 = Acknowledge
8 = Praise
9 = Corrective feedback
10 = No response
11 = Waiting
12 = Observing, listening

(5) Nonverbal and Motion

NV = Nonverbal
X = Motion

(6) How

H = Happy
U = Unhappy
N = Negative
T = Touch
Q = Question
G = Guide/reason
P = Punish
O = Object
W = Worth
D = Dramatic plav/pretend
A = Academic
B = Behavior

Var. No.	Variable Description					
	R,S	Who	To Whom	What	NV,X	How
341a 472c	Child to adult, all verbal					
	___	C,D,2,S,L	T,A,V	1,2,3, 4,5,6, 7,8,9	not NV	not P nor O
342a 473c	Adult to child, all verbal					
	___	T,A,V	C,D,2,S,L	1,2,3, 4,5,6, 7,8,9	not NV	not O
343a 474c	Child to adult, all verbal except response					
	___	C,D,2,S,L	T,A,V	1,2,4, 5,6,7, 8,9	not NV	not P nor O

Var. No.	Variable Description					
	R,S	Who	To Whom	What	NV,X	How
344a 475c	Individual child verbal with adult					
	—	C,D	T,A,V	1,2,3, 4,5,6, 7,8,9	not NV	not O
			OR:			
	—	T,A,V	C,D	1,2,3, 4,5,6, 7,8,9	not NV	Not O
345a 476c	Verbal interactions among children					
	—	C,D,2,S,L (neither C to C nor D to D)	C,D,2,S,L	1,2,3, 4,5,6, 7,8,9	not NV	not O
346a 477c	Child commands, requests, and direct questions, nonacademic					
	—	C,D,2,S,L	T,A,V C,D,2,S,L	1	—	not G,P,O,A nor B
347a 478c	Child commands, requests, and direct questions, academic					
	—	C,D,2,S,L	T,A,V C,D,2,S,L	1	—	A* not G,P,O nor B
348a 479c	Child open-ended questions, nonacademic					
	—	C,D,2,S,L	T,A,V C,D,2,S,L	2	not NV	not G,P,O,A nor B
349a 480c	Child open-ended questions, academic					
	—	C,D,2,S,L	T,A,V C,D,2,S,L	2	not NV	A* not G,P,O nor B
350a 481c	Child questions to adults					
	R	C,D,2,S,L	T,A,V	1,2	—	not G,P,O nor B
351a 482c	Adult commands, requests, and direct questions to groups of children, nonacademic					
	R	T,A,V	2,S,L	1	—	not G,P,O,A nor B
352a 483c	Adult commands, requests, and direct questions to individual children, nonacademic					
	R	T,A,V	C,D	1	—	not G,P,O,A nor B

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* Code is necessary for the frame to be acceptable.

Var. No.	Variable Description R,S	Who	To Whom	What	NV,X	How
353a 484c	Adult commands, requests, and direct questions to groups of children, academic					
	R	T,A,V	2,S,L	1	___	A* not G,P,O nor B
354a 485c	Adult commands, requests, and direct questions to individual children, academic					
	R	T,A,V	C,D	1	___	A* not G,P,O nor B
355a 486c	Adult open-ended questions to children, nonacademic					
	R	T,A,V	C,D,2,S,L	2	not NV	not G,P,O,A nor B
356a 487c	Adult open-ended questions to children, academic					
	R	T,A,V	C,D,2,S,L	2	not NV	A* not G,P,O nor B
357a 488c	All adult questions to children					
	R	T,A,V	C,D,2,S,L	1,2	___	not G,P,O nor B
358a 489c	All child responses					
	___	C,D,2,S,L	T,A,V,M C,D,2,S,L	3	___	not P nor O
359a 490c	Child responses, nonacademic					
	___	C,D,2,S,L	T,A,V,M C,D,2,S,L	3	___	not P,O,A nor B
360a 491c	Child responses, academic					
	___	C,D,2,S,L	T,A,V,M C,D,2,S,L	3	___	A* not P,O nor B
361a 492c	Child responses to behavioral correction or reinforcement					
	R	C,D,2,S,L	T,A,V C,D,2,S,L	3	___	B* not P,O nor A
362a 493c	Individual child responds to adult academic command, request, or direct question					
	R	T,A,V	C,D	1	___	A* not G,P,O,W nor B
			FOLLOWED BY:			
	not R nor S	C,D	T,A,V	3	___	A* not Q,G,P,O nor B

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[*] Code is necessary for the frame to be acceptable.

Var. No.	Variable Description					
	R,S	Who	To Whom	What	NV,X	How
363a 494c	Child group responds to adult academic command, request, or direct question					
	R	T,A,V	2,S,L	1	___	A* not G,P,O,W nor B
			FOLLOWED BY:			
	not R nor S	2,S,L	T,A,V	3	___	A* not P,O nor B
364a 495c	Adult responses to child requests or questions, academic					
	R	T,A,V	C,D,2,S,L	3	___	A* not P,O, nor B
365a 496c	Adult responses to child requests or questions, nonacademic					
	R	T,A,V	C,D,2,S,L	3	___	not P,O,A nor B
366a 497c	Adult responds to child question with open-ended question					
	R	C,D,2,S,L	T,A,V	1,2	___	not G,P,O nor B
			FOLLOWED BY:			
	not R nor S	T,A,V	C,D,2,S,L	2	not NV	not G,P,O,W nor B
367a 498c	Adult responds to child question with direct question					
	R	C,D,2,S,L	T,A,V	1,2	___	not G,P,O,W nor B
			FOLLOWED BY:			
	not R nor S	T,A,V	C,D,2,S,L	1	not NV	not G,P,O,W nor B
368a 499c	Child responds to adult open-ended question					
	R	T,A,V	C,D,2,S,L	2	not NV	not P,O,W nor B
			FOLLOWED BY:			
	not R nor S	C,D,2,S,L	T,A,V	3	___	not Q,G,P,O nor B
369a 500c	Child extended response, nonacademic					
	not R nor S	C,D,2,S,L	T,A,V C,D,2,S,L	3	not NV	not P,O,A nor B
			FOLLOWED BY:			
	R	C,D,2,S,L	T,A,V C,D,2,S,L	4,6	not NV	not Q,G,P,O,A nor B

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*Code is necessary for the frame to be acceptable.

Var. No.	Variable Description					
	R,S	Who	To Whom	What	NV,X	How
370a 501c	Child extended response, academic					
	not R nor S	C,D,2,S,L	T,A,V C,D,2,S,L	3	not NV	A* not Q,G,P,O nor B
			FOLLOWED BY:			
	R	C,D,2,S,L	T,A,V C,D,2,S,L	4,6	not NV	A* not Q,G,P,O nor B
371a 502c	Child extended response to adult open-ended question					
	R	T,A,V	C,D,2,S,L	2	not NV	not Q,G,P,O,W nor B
			FOLLOWED BY:			
	not R nor S	C,D,2,S,L	T,A,V	3	not NV	not Q,G,P,O nor B
			FOLLOWED BY:			
	R	C,D,2,S,L	T,A,V	4,6	not NV	not Q,G,P,O nor B
372a 503c	Child presenting information to a group					
	R	C,D	2,S,L	4	___	not Q,G,P nor B
373a 504c	Adult instruction, nonacademic					
	___	T,A,V	C,D,2,S,L	4	___	not Q,G,P,A nor B
374a 505c	Adult instruction, academic					
	___	T,A,V	C,D,2,S,L	4	___	A* not Q,G,P nor B
375a 506c	Adult instructs individual child					
	___	T,A,V	C,D	4	___	not Q,G,P nor B
376a 507c	Adult instructs a group					
	___	T,A,V	2,S,L	4	___	not Q,G,P nor B
377a 508c	Child self-instruction					
	R	either C or D	C D	4	NV*	not T,Q,G,P,W,D nor B
378a 509c	Child self-instruction, academic					
	R	either C or D	C D	4	NV*	A* not T,Q,G,P,W,D nor B

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*Code is necessary for the frame to be acceptable.

Var. No.	Variable Description					
	R,S	Who	To Whom	What	NV,X	How
379a 510c	Child self-instruction, objects					
	R	either C or D	C D	4	NV*	O* not T,Q,G,P,W,D nor B
380a 511c	Child self-instruction, academic, with objects					
	R	either C or D	C D	4	NV*	O*,A* not T,Q,G,P,W,D nor B
381a 512c	Child instructing other children					
	R	C	D,2,S,L	4	___	not Q,G,P nor B
			OR:			
	R	D	C,2,S,L	4	___	not Q,G,P nor B
382a 513c	Child task persistence					
	not R nor S	C	C	4	NV*	not T,Q,G,P,W,D nor B
	Followed by Repeat in minimum of five successive frames (value of 1 will be given for each set of five Repeat frames).					
383a 514c	Two children using concrete objects together					
	R	2	2	4	NV*	O* not Q,G,P nor B
384a 515c	Small group using concrete objects together					
	R	S	S	4	NV*	O* not Q,G,P nor B
385a 516c	Social interaction among children					
	___	C,D,2,S,L (neither C to C nor D to D)	C,D,2,S,L	5	___	not Q,G,P,O,A nor B
386a 517c	Child task-related comments to children					
	___	C,D,2,S,L	C,D,2,S,L	6	not NV	not Q,G,P,O nor B
387a 518c	Child general comments to adults					
	___	C,D,2,S,L	T,A,V	5	not NV	not Q,G,P,O,A nor B
388a 519c	Child task-related comments to adults					
	___	C,D,2,S,L	T,A,V	6	not NV	not Q,G,P,O nor B

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*Code is necessary for the frame to be acceptable.

Var. No.	Variable Description	R,S	Who	To Whom	What	NV,X	How
389a 520c	Adult general comments to children	___	T,A,V	C,D,2,S,L	5	not NV	not Q,G,P,O,A nor B
390a 521c	Adult task-related comments to children	___	T,A,V	C,D,2,S,L	6	not NV	not Q,G,P,O nor B
391a 522c	Child acknowledgment	___	C,D,2,S,L	T,A,V C,D,2,S,L	7	___	not N,Q,G,P nor O
392a 523c	Child praise	___	C,D,2,S,L	T,A,V C,D,2,S,L	8	___	not U,N,Q,G,P,O nor W
393a 524c	Child corrective feedback	___	C,D,2,S,L	T,A,V C,D,2,S,L	9	___	not P,O nor W
394a 525c	All adult acknowledgment to children	R	T,A,V	C,D,2,S,L	7	___	not N,Q,G,P nor O
395a 526c	Adult acknowledgment to children, academic	R	T,A,V	C,D,2,S,L	7	___	A* not N,Q,G,P,O,W,D nor B
396a 527c	Adult acknowledgment to children, behavior	R	T,A,V	C,D,2,S,L	7	___	B* not N,Q,G,P,O,W,D nor A
397a 528c	Adult acknowledgment to children, other task-related	R	T,A,V	C,D,2,S,L	7	___	not N,Q,G,P,O,W,A nor B
398a 529c	All adult praise to children	R	T,A,V	C,D,2,S,L	7	___	not N,Q,G,P nor W
399a 530c	Adult reinforcement with token, academic	R	T,A,V	C,D,2,S,L	8	___	O*,A* not U,N,Q,G,P,W,D nor B

---

*Code is necessary for the frame to be acceptable.

Var. No.	Variable Description	R,S	Who	To Whom	What	NV,X	How
400a 531c	Adult reinforcement with token, behavior	R	T,A,V	C,D,2,S,L	8	—	O*,B* not U,N,Q,G,P,W,D nor A
401a 532c	Adult reinforcement with token, other task-related	R	T,A,V	C,D,2,S,L	8	—	O* not U,N,Q,G,P,W,A nor B
402a 533c	Adult praise, academic	R	T,A,V	C,D,2,S,L	8	—	A* not U,N,Q,G,P,W,D nor B
403a 534c	Adult praise, behavior	R	T,A,V	C,D,2,S,L	8	—	B* not U,N,Q,G,P,W,D nor A
404a 535c	Adult praise, other task-related	R	T,A,V	C,D,2,S,L	8	—	not U,N,Q,G,P,W,A nor B
405a 536c	All adult corrective feedback to children	R	T,A,V	C,D,2,S,L	9	—	not O nor W
406a 537c	Adult positive corrective feedback, academic	R	T,A,V	C,D,2,S,L	9	—	(G or Q)*,A* not U,N,P,O,W,D nor B
407a 538c	Adult negative corrective feedback, academic	R	T,A,V	C,D,2,S,L	9	—	(N or P)*,A* not H,Q,G,O,W,D nor B
408a 539a	Adult positive corrective feedback, behavior	R	T,A,V	C,D,2,S,L	9	—	(G or Q)*,B* not U,N,P,O,W nor A
409a 540c	Adult negative corrective feedback, behavior	R	T,A,V	C,D,2,S,L	9	—	(N or P)*,B* not H,Q,G,O,W,D nor A

---

*Code is necessary for the frame to be acceptable.

Var. No.	Variable Description					
	R,S	Who	To Whom	What	NV,X	How
410a 541c	Adult positive corrective feedback, other task-related					
	R	T,A,V	C,D,2,S,L	9	___	(G or Q)* not U,N,P,O,W,A nor B
411a 542c	Adult negative corrective feedback, other task-related					
	R	T,A,V	C,D,2,S,L	9	___	(N or P)* not H,Q,G,O,W,D,A nor B
412a 543c	Adult feedback for child response to adult academic command, request, or direct question					
	R	T,A,V	C,D,2,S,L	1	___	A* not G,P,O nor B
			FOLLOWED BY:			
	not R nor S	C,D,2,S,L	T,A,V	3	___	A* not Q,G,P,O nor B
			FOLLOWED BY:			
	not R nor S	T,A,V	C,D,2,S,L	7,8,9	___	A* not W nor B
413a 544c	Child not responding to adults					
	R	C,D,2,S,L	T,A,V	10	___	___
414a 545c	Adult not responding to child					
	R	T,A,V	C,D,2,S,L	10	___	___
415a 546c	All children waiting					
	R	either C or D or 2 or S or L	C D 2 S L	11	___	___
416a 547c	Children attentive to adults, nonacademic					
	___	C,D,2,S,L	T,A,V	12	___	not Q,G,P,O,W,D,A nor B
417a 548c	Children attentive to adults, academic					
	___	C,D,2,S,L	T,A,V	12	___	A* not Q,G,P,O,W,D nor B

---

*Code is necessary for the frame to be acceptable.

Var. No.	Variable Description	R,S	Who	To Whom	What	NV,X	How
418a 549c	Adults attentive to children, nonacademic	___	T,A,V	C,D,2,S,L	12	___	not Q,G,P,O,W,D,A nor B
419A 550c	Adults attentive to children, academic	___	T,A,V	C,D,2,S,L	12	___	A* not Q,G,P,O,W,D nor B
420a 551c	Adults attentive to small group	___	T,A,V	S	12	___	not Q,G,P,O,W,D nor B
421a 552c	Adults attentive to individual child	___	T,A,V	C,D	12	___	not O,G,P,O,W,D nor B
422a 553c	Positive behavior among children	___	C,D,2,S,L	C,D,2,S,L	___	___	H* not U,N nor P
423a 554c	Positive behavior--adults to children	___	T,A,V	C,D,2,S,L	___	___	H* not U,N, nor P
424c 555c	Positive behavior, children to adults	___	C,D,2,S,L	T,A,V	___	___	H* not U,N, nor P
425a 556c	Child expressions of unhappiness	___	C,D,2,S,L	___	___	___	U* not H,P, nor W
426a 557c	Adult expressions of unhappiness	___	T,A,V	___	___	___	U* not H nor W
427a 558c	Negative behavior among children	___	C,D,2,S,L	C,D,2,S,L	___	___	N* not H,Q,G nor W
428a 559c	Negative behavior, adults to children	___	T,A,V	C,D,2,S,L	___	___	N* not H,Q,G,O nor W

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*Code is necessary for the frame to be acceptable.

Var. No.	Variable Description	R,S	Who	To Whom	What	NV,X	How
429a 560c	Negative behavior, children to adults	—	C,D,2,S,L	T,A,V	—	—	N* not H,Q,G,O nor W
430a 561c	Total adult affect	—	T,A,V	—	—	—	(H,U or N)* not O
431a 562c	Total child affect	—	C,D,2,S,L	—	—	—	(H,U or N)*
432a 563c	Adult punishment of children	R	T,A,V	C,D,2,S,L	9	—	not H,Q,G,O,W nor D
433a 564c	Child statements of self-worth	—	C,D,2,S,L	T,A,V C,D,2,S,L	1,2,3, 4,5,6, 7,8,9	not NV	W* not U,N,P nor O
434a 565c	Dramatic play, pretending	—	T,A,V C,D,2,S,L	T,A,V C,D,2,S,L	1,2,3, 4,5,6, 7,8,9, 10,12	—	D*
435a 566c	Total academic verbal interactions	—	T,A,V C,D,2,S, L,M	T,A,V C,D,2,S, L,M	—	—	A* not B
436a 567c	Total interactions, behavior control	—	T,A,V C,D,2,S,L	T,A,V C,D,2,S,L	3,7,8 9	—	B* not O,W nor A
437a 568c	Children engaged in mutual activity	—	either 2 S	or 2 S	4,5,6	—	not Q,G,P,W nor B
438a 569c	Adult communication/attention focus: one child	R	T,A,V	C,D	1,2,3, 4,5,6, 7,8,9, 11,12	—	not O

---

*Code is necessary for the frame to be acceptable.

Var. No.	Variable Description R,S	Who	To Whom	What	NV,X	How
439a 570c	Adult communication/attention focus: two children					
	R	T,A,V	2	1,2,3 4,5,6, 7,8,9 11,12	___	not 0
440a 571c	Adult communication/attention focus: small group					
	R	T,A,V	S	1,2,3, 4,5,6, 7,8,9, 11,12	___	not 0
441a 572c	Adult communication/attention focus: large group					
	R	T,A,V	L	1,2,3, 4,5,6, 7,8,9, 11,12	___	not 0
442a 573c	All child nonverbal					
	___	C,D,2,S,L	___	1,2,3, 4,5,6 7,8,9	NV*	not W
			OR:			
	___	C,D,2,S,L	___	10,11 12	___	not Q,G,P,O,W,D nor B
443a 574c	Child movement					
	___	C,D,2,S,L	___	1,2,3, 4,5,6, 7,8,9, 12	X*	___
444a 575c	Adult movement					
	___	T,A,V	___	1,2,3, 4,5,6, 7,8,9, 12	X*	___
445a 576c	Adult leaving room					
	___	either T or A or V	T A V	5	NV*,X*	not T,Q,G,P,O,W, D,A nor B
	Followed by "Cancel" in next one to five frames.					

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[*] Code is necessary for the frame to be acceptable.

Var. No.	Variable Description	R,S	Who	To Whom	What	NV,X	How
446a 577c	Child attentive to machine	___	C,D,2,S,L	M	1,2,3, 4,5,6, 7,8,9, 12	not NV	not T,G,P,O,W nor B
	OR:						
		___	M	C,D,2,S,L	1,2,3, 4,5,6 7,8,9, 12	not NV	not T,G,P,O,W nor B
447a 578c	Adult neutral corrective feedback, other task-related	R	T,A,V	C,D,2,S,L	9	___	not N,Q,G,P,O,W,A nor B
448a 579c	Adult neutral corrective feedback, behavior	R	T,A,V	C,D,2,S,L	9	___	B* not N,Q,G,P,O,W nor A
449a 580c	Adult neutral corrective feedback, academic	R	T,A,V	C,D,2,S,L	9	___	A* not N,Q,G,P,O,W nor B

The following variables are sums of previously specified FMO variables. The numbers in parentheses refer to the variable as numbered for adult focus observations.

Var. No.	Variable Description	R,S	Who	To Whom	What	NV,X	How
450a 581c	All child open-ended questions (348a + 349a)	___	C,D,2,S,L	T,A,V C,D,2,S,L	2	not NV	not G,P,O nor B
451a 582c	Adult academic commands/requests and direct questions to children (353a + 354a)	R	T,A,V	C,D,2,S,L	1	___	A* not G,P,O nor B

---

*Code is necessary for the frame to be acceptable.

Var. No.	Variable Description					
	R,S	Who	To Whom	What	NV,X	How
452a 583c	All adult open-ended questions to children (355a + 356a)					
	R	T,A,V	C,D,2,S,L	2	not NV	not G,P,O nor B
453a 584c	Adult response to child's question with a question (366a + 367a)					
	R	C,D,2,S,L	T,A,V	1,2	—	not G,P,O,W nor B
			FOLLOWED BY:			
	Not R nor S	T,A,V	C,D,2,S,L	1,2	not NV	not G,P,O,W nor B
454a 585c	Child's extended response (369a + 370a + 371a)					
	R	C,D,2,S,L	T,A,V C,D,2,S,L	3	not NV	not P,O nor B
			FOLLOWED BY:			
	R	C,D,2,S,L	T,A,V C,D,2,S,L	4,6	not NV	not Q,G,P,O nor B
455a 586c	All adult instruction (373a + 374a)					
	—	T,A,V	C,D,2,S,L	4	—	not Q,G,P nor B
456a 587c	All child task-related comments (386a + 388a)					
	—	C,D,2,S,L	T,A,V C,D,2,S,L	6	not NV	not Q,G,P,O nor B
457a 588c	All adult positive corrective feedback (406a + 408a + 410a)					
	R	T,A,V	C,D,2,S,L	9	—	(G or Q)* not U,N,P,O nor W
458a 589c	All adult negative corrective feedback (407a + 409a + 411a)					
	R	T,A,V	C,D,2,S,L	9	—	(N or P)* not U,N,P,O nor W
459a 590c	All adult praise for academic responses (Duplicate of Var. 402a/534c)					
460a 591c	All child positive affect (422a + 424a)					
	—	C,D,2,S,L	T,A,V C,D,2,S,L	—	—	H* not U,N nor P
461a 592c	All child negative affect (427a + 429a)					
	—	C,D,2,S,L	T,A,V C,D,2,S,L	—	—	N* not H,Q,G nor W

---

*Code is necessary for the frame to be acceptable.

Var. No.	Variable Description					
	R,S	Who	To Whom	What	NV,X	How
462a 593c	All positive behavior (422a + 423a + 424a)					
	___	T,A,V C,D,2,S,L	T,A,V C,D,2,S,L	___	___	H* not U,N nor P
463a 594c	All negative behavior (427a + 428a + 429a)					
	___	T,A,V C,D,2,S,L	T,A,V C,D,2,S,L	___	___	N* not H,Q,G nor W
464a 595c	Child attentive to adults or machine (416a + 417a + 446a)					
	___	C,D,2,S,L	T,A,V	12	___	not Q,G,P,O,W,D nor B
			OR:			
	___	C,D,2,S,L	M	1,2,3, 4,5,6, 7,8,9, 12	not NV	not T,G,P,O,W nor B
			OR:			
	___	M	C,D,2,S,L	1,2,3, 4,5,6, 7,8,9, 12	not NV	not T,G,P,O,W nor B
465a 596c	Adult feedback to children for behavior (396a + 403a + 408a + 409a)					
	R	T,A,V	C,D,2,S,L	7,8,9	___	B*
466a 597c	Child self-esteem (392a + 393a + 433a + 454a)					
a)	___	C,D,2,S,L	T,A,V C,D,2,S,L	8,9	___	not P,O nor W
			OR:			
b)	___	C,D,2,S,L	T,A,V C,D,2,S,L	1,2,3 4,5,6, 7,8,9	not NV	W* not U,N,P nor O
			OR:			
c)	R	C,D,2,S,L	T,A,V C,D,2,S,L	3	not NV	not P,O nor B
			FOLLOWED BY:			
	R	C,D,2,S,L	T,A,V C,D,2,S,L	4,6	not NV	not Q,G,P,O nor B

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[*] Code is necessary for the frame to be acceptable.

Var. No.	Variable Description					
	R,S	Who	To Whom	What	NV,X	How
467a 598c	Child cooperation (381a + 386a + 437a)					
a)	R	C	D,2,S,L	4	___	not Q,G,P nor B
			OR:			
	R	D	C,2,S,L	4	___	not Q,G,P nor B
			OR:			
b)	___	[illegible],D,2,S,L	C,D,2,S,L	6	not NV	not Q,G,P,O nor B
			OR:			
c)	___	either		4,5,6	___	not Q,G,P,W nor B
		2	2			
		or				
		S	S			
468a 599c	Child self instruction, nonacademic (377a - 378a)					
	R	either		4	NV[*]	not T,Q,G,P,W,D,A nor B
		C	C			
		or				
		D	D			
469a 600c	All adult reinforcement with tokens (399a + 400a + 401a)					
	R	T,A,V	C,D,2,S,L	8	___	O[*] not U,N,O,G,P nor W
470a 601c	All adult neutral corrective feedback (447a + 448a + 449a)					
	R	T,A,V	C,D,2,S,L	9	___	not N,Q,G,P,O nor W
471a 602c	Adults attentive to large group (418a + 419a - 420a - 421a)					
	___	T,A,V	L,2[**]	12	___	not Q,G,P,O,W,D nor B

---

[*] Code is necessary for the frame to be acceptable.

[**] "Two children" is included here because the variable was added after the computer run was completed; however, it is felt that the frequency of adults attentive to two children will be minimal and will not affect greatly the frequency of the intended variable.

Appendix H

ANALYSIS SPECIFICATIONS FOR THE TEACHER AND TEACHING AIDE QUESTIONNAIRES

Appendix H

ANALYSIS SPECIFICATIONS FOR THE TEACHER AND TEACHING AIDE QUESTIONNAIRES

1. Teacher Questionnaire

The computations were performed for each site and for each sponsor. The unit of analysis was the teacher. Non-Follow Through teachers were omitted from the computations of site and sponsor statistics. The means and standard deviations for Non-Follow Through teachers were computed separately.

Also recorded were the number of teachers included in each computation (i.e., for Follow Through, the number of Follow Through teachers at each site and over sites within sponsor; for Non-Follow Through the total number of Non-Follow Through teachers) and the number of teachers for whom the Questionnaire is not available.

a. Teacher Satisfaction

Reverse order of value for questions 11, 12, 13, 34, 71. Add the values of questions 11, 12, 13, 34, 71. Report the mean and standard deviation.

Questions

(11) If you had your choice, would you teach in Follow Through next year? (CHECK ONE)

1) Definitely yes ( )
2) Probably yes ( )
3) Undecided ( )
4) Probably no ( )
5) Definitely no ( )
6) I am not familiar with Follow Through ( )→Skip to Question 14

(12) Recognizing that the parent must make the final decision, if a parent asked your opinion would you advise her to enroll her child in a Follow Through class?

1) Definitely yes ( )
2) Probably yes ( )
3) Undecided ( )
4) Probably no ( )
5) Definitely no ( )

(13) If a friend asked your opinion, would you advise her to teach in a Follow Through class?

1) Definitely yes ( )
2) Probably yes ( )
3) Undecided ( )
4) Probably no ( )
5) Definitely no ( )

(34) Thinking of this class as a whole, how satisfied are you with the overall growth these pupils made in school this year? (CHECK ONE)

1) Very satisfied ( )
2) Satisfied ( )
3) Mixed feelings ( )
4) Dissatisfied ( )
5) Very dissatisfied ( )

(71) If you had your choice of a way to teach, would you:

1) Continue to use the sponsor's approach you are using to the same extent you do now ( )

2) Alter your teaching some, but continue to use the approach ( )

3) Use some of this approach in your teaching but change most of it ( )

4) Not use this approach at all ( )

b. Frequency and Kind of Training

Do not sum. Report separately for each item a-h (omit i) on question 24:

(1) A tally of the "never" (value of 1) responses

(2) Mean and standard deviation for those responses other than never, rescaled as follows:

Response	Rescale to
2	2
3	5
4	9
5	22
6	36

Question

(24) Below are several types of pre- or in-service training you may have received from your teaching assignment this school year. Indicate below how often this year you received each of the following types of training. Use this scale:

1 = Never
2 = About once or twice a year
3 = About every other month
4 = About once a month
5 = About 2 to 3 times a month
6 = About once a week or more

a. Materials mailed to your for your own use. ☐

b. Visits or demonstrations in your own classroom. ☐

c. Visiting and observing work of other teachers in their classrooms. ☐

d. Workshops during vacation periods. ☐

e. Workshops on Saturdays or after school. ☐

f. Consultations with specialists or trainers, not in your own classroom. ☐

g. Videotapes of model teaching episodes. ☐

h. Videotapes of yourself in teaching episodes. ☐

i. Other (SPECIFY) ______________________________ .

c. Training Emphasis

Items a through p--Do not sum. Report the tallies for each item in question 25 separately.

(25) Below are several areas in which you may have received pre- or in-service training for your teaching assignment this school year. Indicate how much emphasis was placed on each of the topics listed. Use the following scale:

1 = A great deal
2 = Some
3 = None

a. Helping the child feel important as a person. ☐

b. Developing enthusiasm for learning. ☐

c. Developing basic skills such as reading, writing, and math. ☐

d. Developing problem solving and critical thinking. ☐

e. Developing the child's ability to work and play cooperatively with other children. ☐

f. Helping the child to make choices and become an independent learner. ☐

g. Involving parents in their child's learning activities. ☐

h. Involving parents in the operations of the school. ☐

i. Diagnosing individual learning needs. ☐

j. Guiding children in learning activities appropriate to their needs. ☐

k. Cooperating effectively with other adults in the classroom. ☐

l. Working with small groups of children. ☐

m. Arranging the classroom environment for instruction (placement of furniture, materials, equipment, etc.). ☐

n. Maintaining discipline and control in the classroom. ☐

o. Using rewards to influence pupil behavior. ☐

p. Developing and/or selecting materials to suit curriculum objectives. ☐

d. Classroom Description--Flexible/Structured

Question 32 (omit items e and l). Reverse order of value for question 32, items a, d, f, i, j, k, m. (Do not reverse b, c, g, or h.) Report the mean and standard deviation of the sum of the responses.

(32) Classrooms differ in many ways depending upon the philosophy and goals of the teaching staff, needs of children, etc. Each statement in Column A is matched with a contrasting statement in Column B. For each pair, place an X inside the parenthesis which comes closest to describing your own classroom.

	Column A	Almost always like A	⟷	Somewhat like A and somewhat like B	⟷	Almost always like B	Column B
a.	Children work independently	(1)	(2)	(3)	(4)	(5)	Children work under adult supervision
b.	Teacher imparts information and provides demonstrations	(1)	(2)	(3)	(4)	(5)	Children gather information on their own
c.	Adults initiate interactions with children	(1)	(2)	(3)	(4)	(5)	Children initiate interactions with adults
d.	Emphasis on emotional needs	(1)	(2)	(3)	(4)	(5)	Emphasis on subject matter
e.	Undesired behavior is corrected	(1)	(2)	(3)	(4)	(5)	Undesired behavior is ignored
f.	Various activities take place at the same time	(1)	(2)	(3)	(4)	(5)	All the class is engaged in the same activity
g.	Lesson plan is followed closely	(1)	(2)	(3)	(4)	(5)	Lesson plan is flexible
h.	Work and play are distinguished	(1)	(2)	(3)	(4)	(5)	Work and play are not distinguished

Column A	Almost always like A ←	→	Somewhat like A and somewhat like B	←	→ Almost always like B	Column B
i. Children choose their own activities and materials	(1)	(2)	(3)	(4)	(5)	Teaching staff determines activities and materials
j. Individual needs dominant	(1)	(2)	(3)	(4)	(5)	Group needs dominant
k. Children interact freely with each other	(1)	(2)	(3)	(4)	(5)	Children do not interact freely with each other
l. Praise and approval given for specific accomplishments	(1)	(2)	(3)	(4)	(5)	Praise and approval given without regard to specific accomplishments
m. Children change places freely	(1)	(2)	(3)	(4)	(5)	Children have assigned seats

e. Ethnicity of Teacher, Question 58

Tally the number of each ethnic background. Use the total number for a site on item 1-8.

Question

(58) Are you: American Indian ( )
Negro/black ( )
Oriental ( )
Spanish surname: Mexican American ( )
Puerto Rican ( )
Other Spanish speaking ( )
Caucasian/white ( )
Other (SPECIFY) ( )

f. Teaching Staff's Knowledge of Child's Home Language

For question 20, report the mean and standard deviation. For question 21, report the tallies. Combine the tallies for response values 1 and 2.

Questions

(20) Do you have any children in this class from homes in which another language is used more often than English?

1) Yes ( ) How many? ☐☐
2) No ( ) → Skip to Question 22
3) Don't know ( ) → Skip to Question 22

(21) Who of the teaching staff speaks the home language of these children?

1) I do, and so does at least one other staff member in this class. ( )
2) I do, but no other staff member in this class does. ( )
3) I do not, but at least one other staff member in this class does. ( )
4) No member of the teaching staff speaks this language. ( )

g. Teacher Background

Report the tallies for question 63.

Question

(63) What is the highest level of education you will have completed by the end of this school year (June, 1973)? (CHECK ONE ONLY)

1) A high school diploma ( )
2) A 2-year (Associates) degree ( )
3) Bachelor's degree ( )
4) Work toward a Masters degree ( )
5) Master's degree or above ( )

h. Number of Years Teaching in Follow Through

Report the tallies for question 69 using categories 0; 1; 2+.

Question

(69) By June 1973, how many school years will you have taught in the Follow Through approach? (INCLUDE YEARS IN OTHER SCHOOLS.) If less than one school year, enter 00

Number of years ☐☐

i. Effect of Follow Through on Teaching

Report the tallies for question 70.

Question

(70) How much has Follow Through changed your approach to teaching? (CHECK ONE)

1) Very much ( )
2) Much ( )
3) Some ( )
4) Not at all ( )

1. Teaching Aide Questionnaire

The computations were performed for each site and for each sponsor. The unit of analysis was the teaching aide. Non-Follow Through teaching aides were omitted from the computations of site and sponsor statistics. The means and standard deviations for Non-Follow Through teaching aides were computed separately.

Also needed are the number of teaching aides included in each computation (i.e., for Follow Through, the number of Follow Through teaching aides at each site and over sites within sponsor; for Non-Follow Through, the total number of Non-Follow Through teaching aides) and the number of teaching aides for whom the Questionnaire is not available.

a. Aide Satisfaction

Reverse the order of value for questions 11, 12, 13, 38. Add the values of questions 11, 12, 13, 38. Report the mean and standard deviation.

Questions

(11) If you had your choice, would you work in Follow Through next year? (CHECK ONE)

1) Definitely yes ( )
2) Probably yes ( )
3) Undecided ( )
4) Probably no ( )
5) Definitely no ( )
6) I am not familiar with Follow Through ( )→Skip to Question 14

(12) Recognizing that the parent must make the final decision, if a parent asked your opinion would you advise her to enroll her child in a Follow Through class?

1) Definitely yes ( )
2) Probably yes ( )
3) Undecided ( )
4) Probably no ( )
5) Definitely no ( )

(13) If a friend asked your opinion, would you advise her to work in Follow Through? (CHECK ONE)

1) Definitely yes ( )
2) Probably yes ( )
3) Undecided ( )
4) Probably no ( )
5) Definitely no ( )

(38) In general, how satisfied are you with the way your time is being used as a teaching assistant? (CHECK ONE)

1) Very satisfied ( )
2) Satisfied ( )
3) Have mixed feelings ( )
4) Dissatisfied ( )
5) Very dissatisfied ( )

b. Frequency and Kind of Training

Do not sum. Report separately for each item a-h (omit i) on question 16:

(1) A tally of the "never" (value of 1) responses

(2) Mean and standard deviation for those responses other than never rescaled as follows:

Response	Rescale to
2	2
3	5
4	9
5	22
6	36

Question

(16) Below are several types of pre- or in-service training you may have received for your present assignment. Indicate below how often this year you received each of the following types of training. Use this scale:

1 = Never
2 = About once or twice a year
3 = About every other month
4 = About once a month
5 = About 2 to 3 times a month
6 = About once a week or more

a. Materials mailed to you for your own use. ☐

b. Visits or demonstrations in your own classroom. ☐

c. Visiting and observing work of other teachers in their classrooms. ☐

d. Workshops during vacation periods. ☐

e. Workshops on Saturdays or after school. ☐

f. Consultations with specialists or trainers, not in your own classroom. ☐

g. Videotapes of model teaching episodes. ☐

h. Videotapes of yourself in teaching episodes. ☐

i. Other (SPECIFY) ______________________________. ☐

c. Training Emphasis

Items a through p--Do not sum. Report the tallies for each item in question 17 separately.

Question

(17) Below are several areas in which you may have received pre- or in-service training for your teaching assignment this school year. Indicate how much emphasis was placed on each of the topics listed. Use the following scale:

1 = A great deal
2 = Some
3 = None

a. Helping the child feel important as a person. ☐

b. Developing enthusiasm for learning. ☐

c. Developing basic skills such as reading, writing, and math. ☐

d. Developing problem solving and critical thinking. ☐

e. Developing the child's ability to work and play cooperatively with other children. ☐

f. Helping the child to make choices and become an independent learner. ☐

g. Involving parents in their child's learning activities. ☐

h. Involving parents in the operation of the school. ☐

i. Diagnosing individual learning needs. ☐

j. Guiding children in learning activities appropriate to their needs. ☐

k. Cooperating effectively with other adults in the classroom. ☐

l. Working with small groups of children. ☐

m. Arranging the classroom environment for instruction (placement of furniture, materials, equipment, etc.). ☐

n. Maintaining discipline and control in the classroom. ☐

o. Using rewards to influence pupil behavior. ☐

p. Developing and/or selecting materials to suit curriculum objectives. ☐

d. Classroom Description--Flexible/Structured

Omit items e and l. Reverse order of value for question 20, items a, d, f, i, j, k, m. (Do not reverse b, c, g, or h.) Report the mean and standard deviation of the sum of the responses.

Question

(20) Classrooms differ in many ways depending upon the philosophy and goals of the teaching staff, needs of children, etc. Each statement in Column A is matched with a contrasting statement in Column B. For each pair, place an X inside the parentheses which comes closest to describing your own classroom.

Column A	Almost always like A	⟷	Somewhat like A and somewhat like B	⟷	Almost always like B	Column B
a. Children work independently	(1)	(2)	(3)	(4)	(5)	Children work under adult supervision
b. Teacher imparts information and provides demonstrations	(1)	(2)	(3)	(4)	(5)	Children gather information on their own
c. Adults initiate interactions with children	(1)	(2)	(3)	(4)	(5)	Children initiate interactions with adults
d. Emphasis on emotional needs	(1)	(2)	(3)	(4)	(5)	Emphasis on subject matter
e. Undesired behavior is corrected	(1)	(2)	(3)	(4)	(5)	Undesired behavior is ignored
f. Various activities take place at the same time	(1)	(2)	(3)	(4)	(5)	All the class is engaged in the same activity
g. Lesson plan is followed closely	(1)	(2)	(3)	(4)	(5)	Lesson plan is flexible

	Column A	Almost always like A	←→	Somewhat like A and somewhat like B	←→	Almost always like B	Column B
h.	Work and play are distinguished	(1)	(2)	(3)	(4)	(5)	Work and play are not distinguished
i.	Children choose their own activities and materials	(1)	(2)	(3)	(4)	(5)	Teaching staff determines activities and materials
j.	Individual needs dominant	(1)	(2)	(3)	(4)	(5)	Group needs dominant
k.	Children interact freely with each other	(1)	(2)	(3)	(4)	(5)	Children do not interact freely with each other
l.	Praise and approval given for specific accomplishments	(1)	(2)	(3)	(4)	(5)	Praise and approval given without regard to specific accomplishments
m.	Children change places freely	(1)	(2)	(3)	(4)	(5)	Children have assigned seats

e. Ethnicity, Question 28

Tally the number of each ethnic background. Use the total number for a site on item 1-8.

Question

(28) Are you:	American Indian		( )
	Negro/black		( )
	Oriental		( )
	Spanish surname:	Mexican American	( )
		Puerto Rican	( )
		Other Spanish speaking	( )
	Caucasian/white		( )
	Other (SPECIFY)		( )

f. Knowledge of Child's Home Language, Questions 14, 15

For question 14, report the mean and standard deviation. For question 15, report the tallies. Combine the tallies for response values 1 and 2.

Questions

(14) Do you have any children in this class from homes in which another language is used more often than English?

1) Yes ( ) How many? ☐☐
2) No ( ) → Skip to Question 16
3) Don't know ( ) → Skip to Question 16

(15) Who of the teaching staff speaks the home language of these children?

1) I do, and so does at least one other staff member in this class. ( )
2) I do, but no other staff member in this class does. ( )
3) I do not, but at least one other staff member in this class does. ( )
4) No member of the teaching staff speaks this language. ( )

g. Aide's Classroom Activity--Question 21

Report a tally for each item separately. Categorize responses into five classes: 1; 2; 3; 4; 5.

Question

(21) For each of the items in the following list, please indicate how often you yourself take part in this activity. Use the following scale:

1 = Very often
2 = Sometimes
3 = Rarely or never because it is carried out by others
4 = Rarely or never because it is not important in this class
5 = Rarely or never because it is not possible in this class

a. Work with small groups in reading, writing, math, etc. ☐
b. Work with small groups in art, music, drama, etc. ☐
c. Work with the whole class in reading, writing, math, etc. ☐
d. Work with the whole class in art, music, drama, etc. ☐
e. Work with individual children in reading, writing, math, etc. ☐
f. Work with individual children in art, music, drama, etc. ☐
g. Help children get along with one another. ☐
h. Help children feel more sure of themselves. ☐

i. Prepare materials for bulletin boards, seat work, etc. ☐

j. Keep attendance records, collect milk money, call the roll, set out materials, etc. ☐

k. Supervise children during lunch, on the playground, on field trips, etc. ☐

l. Serve or help serve food or snacks, clean up after lunch, etc. ☐

m. Help develop and plan learning activities. ☐

n. Keep order in class.

o. Visit or meet with parents at school or in their homes. ☐

Appendix I

SPECIFICATION FOR PROCESSING TEST DATA

Appendix I

SPECIFICATION FOR PROCESSING TEST DATA

As the first step in creating the classroom level file of test scores, a record of test scores for each child in each observer classroom was produced. What follows is a list of the test scores obtained for each grade level/entering grade and details of how the test scores were computed.

I. Spring 1973 - Metropolitan Achievement Test (MAT) - Primary I - Form F. For entering and non-entering first grade.

Subtest	Form No.	Card Column	Maximum Score	
Word Analysis	865	33-72	40	
Total Reading	864	33-67	35	77
	866	33-74	42	
Math	867	33-67	35	62
	868	33-59	27	

Scoring procedure: score 1 point for each item coded "1." If a child took the test and obtains a score of zero (none correct), he is given a score of " ."

Criteria for presence or absence of test:

1) Word analysis - if cc. 33-72 of form 865 are all zero, the test is absent.

2) Total reading - this test is a combination of subtest word knowledge Form 864 and Reading Form 866. Since these 2 tests were administered on 3 different days, the child must have been present on all 3 days to have a total reading score. The tests were administered as follows:

Test	Form No.	Card Column	No. of Items	Sitting Day
Word Knowledge	864	33-67	35	1
Reading	866	33-45	13	2
		46-74	29	3

If a child has any set of these items all zero, the child is considered absent for total reading.

3) Form 867 cc. 33-67 was administered on day 4 and form 868 cc. 33-59 was administered on day 5, if either of these forms are all zero for the columns specified, the child was absent for the Math test.

II. Spring 1973 - Metropolitan Achievement Test (MAT) - Elementary - Form F. For third grade.

Subtest	Form No.	Card Column	Maximum Score	
Total Reading	876	33-54	22	95
	877	33-60	28	
	878	33-77	45	
Language	879	33-61	29	50
	880	33-53	21	
Math Computation	882	33-72	40	
Math Concepts	883	33-72	40	
Math Problem Solving	884	33-67	35	
Total Math	882-884		115	

Scoring procedure: Score 1 point for each item coded "1." If a child took a test and obtains a score of zero (none correct) he is given a score of "0."

Criteria for presence or absence of a test: A child must have all forms present for a particular test to have taken the test. A form is considered absent if all items are zero. The subsets which constitute Total Reading were administered on the first day; therefore, if the child was absent on day 1, he will not have a Total Reading score. The subtests for Total Math were administered on days 4 and 5; therefore, if the child was absent on either one or both of these days, no Total Math score was computed.

III. Spring 1973 - Third Grade.

A. Intellectural Achievement Responsibility Scale (IAR) - Form 887 - cc. 33-66, Score 1 point for each item coded "1." There were 34 items on the IAR. The items were scored by success and failure items (17 items for each). Items #1, 2, 5, 6, 9, 12, 13, 16, 17, 20, 21, 24, 25, 28, 29, 31, 32 were used for success, and the remainder of the items were used for failure. Test is not taken if form is absent. The success raw score represents the number of responses attributing success to internal force; conversely, the raw score for failure represents the number of responses attributing failure to internal force.

B. Coopersmith Self-Esteem Inventory (Coopersmith)

Form No.	Card Column	No. of Items	
888	33-69	37	58
889	33-53	21	

Score point for each item coded "1." Eight items were used as a validity test; therefore, the score range was 0-50. The test was not taken if either or both forms are absent. The total number of responses indicating self-esteem constitutes the raw score.

C. Raven's Coloured Progressive Matrices (Ravens) - Form 890 - cc. 33-59, score 1 point for each item coded "1." Score range 0-27. Test is not taken if form is absent.

D. Wide Range Achievement Test (WRAT) - Form 951 - Booklet 10A - Fall 1969 - For kindergarten.

Subtest	Item Description	Maximum Score*
Reading	2 letters in a name	2
	Naming 13 letters	13
	Recognizing 19 letters	10
	Word reading aloud	10
	Reading subscore	35
Spelling	Name spelling	2
	Copying marks (1-9)	9
	Copying marks (10-18)	9
	Spelling from dictation	5
	Spelling subscore	25
Math	Counting 15 dots aloud	8**
	Oral numbers	5
	Showing fingers	2
	Which is more	2
	Solving problems	3
	Written computation	4
	Math subscore	24
	Total WRAT score	84

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*In most instances, the maximum score represents the sum of the correct entries in the fields specified.

**The formula for scoring this item is $\frac{N}{2} + 1$. Since an integer dividing procedure is used, the quotient is rounded off to the lowest whole number. Therefore, even if a child counts 15 dots, the maximum score is still 8.

E. Wide Range Achievement Test (WRAT) - Booklet K-4 - Fall 1970
For kindergarten.

Subtest	Form No.	Item Description	Maximum Score*
Reading	554	Recognizing 2 letters in a name	2**
		Matching 10 letters	10
		Naming 13 letters	13
	555	Word reading aloud	10
		Reading subscore	35
Spelling	554	Copying marks	18
		Name spelling	2**
		Spelling from dictation	5
		Spelling subscore	25
Math	555	Counting 15 dots aloud	8***
		Oral numbers	5
		Showing fingers	2
		Which is more	2
		Solving problems	3
		Written computation	4
		Math subscore	24
		Total WRAT score	84

F. Wide Range Achievement Test (WRAT) - Booklet K-4 - Fall 1971 - For kindergarten.

Subtest	Form No.	Item Description	Maximum Score*
Reading	757	Recognizing 2 letters in a name	2**
		Recognizing 10 letters and naming 13 letters	23
	758	Word reading aloud	14
		Reading subscore	39
Spelling	757	Copying marks	18
		Name spelling	2**
	758	Spelling words from dictation	8
		Spelling subscore	28
Math	758	Counting 15 dots aloud	8***
		Reading numbers, oral and written arithmetic	16
		Math subscore	24
		Total WRAT score	91

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*In most instances, the maximum score represents the sum of the correct entries in the fields specified.

**In either letter recognizing or name spelling the number of letters recognized correctly is coded as follows: 1 = One, 2 = At least 2.

***The formula for scoring this item is $\frac{N}{2} + 1$. Since an integer dividing procedure is used, the quotient is rounded off to the lowest whole number. Therefore, even if a child counts 15 dots, the maximum score is still 8.

Appendix J

CLASSROOM ROSTER--DEMOGRAPHIC INFORMATION FORM

Appendix J

CLASSROOM ROSTER--DEMOGRAPHIC INFORMATION FORM

For each classroom that was observed on at least one day, the following information was recorded from the Classroom Roster Form, Spring 1973.

Variables

1. Number of children in the classroom listed on the roster.
2. Number of children who left the class before 2/1/73.
3. Number of children who entered other than at the beginning of the school year.
4. Number of children who left the class during the school year.
5. Number of no response on age in year.
6. Of non-blank entries, average age in months as of January 1, 1973.
7. Standard deviation of age in months.
8. Number of no response on sex.
9. Number of males.
10. Number of no response or don't know for ethnicity.
11. Number of blacks.
12. Number of Caucasian or White.
13. Number of none (9), don't know (0) or no response (blank) on first language.
14. Number of children with other than English as a first language.
15. Number of not available (77), don't know (88), or no response (99) on both months Head Start and months equivalent.
16. Number of children with Head Start experience or equivalent (01-48 on either entry).
17. None (00).
18. 1 to 10.
19. 11 to 20.
20. 21 to 30.
21. Above 30.
22. Other (77, 88, 99).
23. Mean number of months FT experience (exclude those students in the "other" category).
24. Number of children with no response on number of days absent.
25. Mean number of days absent for those who had a response.

Appendix K

UNIFORMITY OF THE CLASSROOM OBSERVATION DATA

NUMBER OF COP'S COMPLETED PER DAY--BY SPONSOR'S SITES
(Adjusted to Include Only FMO's with 50 or More Frames)

Sponsor and Site	$\bar{X}$	S.D.	Number of Days Observed
For all sponsors	18.88	2.17	1,101
Far West Lab			
Berkeley, Calif.	19.43	1.14	30
Duluth, Minn.	19.00	1.60	30
Lebanon, N.H.	18.83	1.56	30
Salt Lake City, Utah	19.90	.40	30
Tacoma, Wash.	19.14	1.81	29
University of Arizona			
Des Moines, Iowa	14.93	5.79	30
Fort Worth, Texas	19.73	.69	30
LaFayette, Ga.	19.33	1.18	27
Lakewood, N.J.	19.29	1.54	28
Newark, N.J.	19.92	.28	25
Lincoln, Nebraska	19.67	.76	30
Bank Street			
Brattleboro, Vermont	17.88	1.51	24
Fall River, Mass.	18.87	1.25	30
New York, P.S. 243K	19.17	2.09	30
Philadelphia II, Pa.	19.04	1.20	28
Tuskegee, Ala.	19.93	.37	29
University of Oregon			
E. St. Louis, Ill.	17.07	4.67	29
New York, P.S. 137K	19.50	.78	24
Racine, Wisc.	19.73	.52	30
Tupelo, Miss.	18.83	2.05	30
Providence, R.I.	17.96	2.06	28
University of Kansas			
New York, P.S. 77X	16.86	2.18	14*
Philadelphia VI, Pa.	19.50	.82	30
Portageville, Mo.	19.81	.48	27
Kansas City, Mo.	19.63	.93	30
Louisville, Ky.	19.40	1.10	30
High/Scope Educational Research Foundation			
Greenwood, Miss.	17.30	3.05	30
Ft. Walton Beach, Fla.	19.53	.90	30
New York, P.S. 92M	15.70	1.07	27
Greeley, Colo.	19.92	.28	24
Denver, Colo.	19.40	1.40	30
Education Development Center			
Burlington, Vermont	18.13	1.87	30
Philadelphia IV, Pa.	19.67	.55	30
Paterson, N.J.	19.30	1.32	30
Rosebud, Texas	17.50	2.34	24
Smithfield, N.C.	19.71	.75	24

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*Restrictions placed on observing children reduced the total number of observation days by ten.

Table K-2

AVERAGE NUMBER OF FRAMES COMPLETED--BY SPONSOR'S SITES
(Includes Only Those COP's with 50 or More Frames)

Sponsor and Site	$\bar{X}$	S.D.	Number of Days Observed
For all sponsors	67.27	5.97	1,011
Far West Lab			
Berkeley, Calif.	69.36	4.22	30
Duluth, Minn.	71.72	3.41	30
Lebanon, N.H.	65.16	7.44	30
Salt Lake City, Utah	69.42	3.77	30
Tacoma, Wash.	66.90	7.70	29
University of Arizona			
Des Moines, Iowa	59.68	10.14	30
Fort Worth, Texas	73.34	1.84	30
LaFayette, Ga.	74.10	1.57	27
Lakewood, N.J.	65.08	4.88	28
Newark, N.J.	68.98	2.06	25
Lincoln, Nebraska	72.33	2.57	30
Bank Street			
Brattleboro, Vermont	60.57	4.06	24
Fall River, Mass.	67.89	4.55	30
New York, P.S. 243K	67.86	2.47	30
Philadelphia II, Pa.	66.68	5.61	28
Tuskegee, Ala.	70.82	4.84	29
University of Oregon			
E. St. Louis, Ill.	64.66	4.48	29
New York, P.S. 137K	66.14	2.73	24
Racine, Wisc.	63.36	2.79	30
Tupelo, Miss.	71.49	2.04	30
Providence, R.I.	64.89	5.22	28
University of Kansas			
New York, P.S. 77X	62.59	3.33	14
Philadelphia VI, Pa.	69.77	6.27	30
Portageville, Mo.	67.83	4.62	27
Kansas City, Mo.	67.36	3.38	30
Louisville, Ky.	61.64	7.42	30
High/Scope Educational Research Foundation			
Greenwood, Miss.	65.31	4.38	30
Ft. Walton Beach, Fla.	67.09	3.81	30
New York, P.S. 92M	74.09	1.06	27
Greeley, Colo.	68.57	2.97	24
Denver, Colo.	64.81	3.70	30
Education Development Center			
Burlington, Vermont	59.93	2.44	30
Philadelphia IV, Pa.	67.83	5.87	30
Paterson, N.J.	71.98	2.97	30
Rosebud, Texas	61.06	3.63	24
Smithfield, N.C.	67.78	5.16	24

Appendix L

INDIVIDUAL OBSERVER RELIABILITY RATINGS--BY SPONSOR

Table L-1

ACCURACY RATES* FOR THE WHAT AND HOW CODES BY FAR WEST OBSERVERS

Site and Grade Level	WHAT Codes--Criterion Instances														
	Six or More									Five or Less					
	1Q	3	4	4NV	5NV	6	7	9	12	1	2	3NV	5	8	11
Berkeley															
Grade 1	.84/ .80	.96/ .89	.62/ .89	.82/ .90	1.0/ .50	.93/ 1.0	.90/ .82	.86/ .75	.94/ .81	1.0/ 1.0	.57 .80	.50/ 1.0	0.0/ 0.0	.67/ 1.0	1.0/ 1.0
Grade 3	.81/ .81	1.0/ .96	1.0/ .38	1.0/ .46	.50/ .88	1.0/ .81	.90/ .82	.73/ 1.0	.82/ .96	.05/ .25	.60/ .60	.75/ 1.0	.50/ 1.0	.67/ 1.0	1.0/ 1.0
Duluth															
Grade 1	.86/ .70	.96/ .84	.86/ .75	.83/ .91	.71/ .71	.62/ .47	.86/ .75	.71/ .63	.92/ .96	.75/ .75	.60/ .60	1.0/ 1.0	.09/ 1.0	.50/ 1.0	1.0/ 1.0
Grade 3	.67/ .60	.79/ .76	.67/ .67	.67/ .67	.80/ .67	.33/ .29	.60/ .67	.71/ .63	.94/ .80	.50/ .50	.43/ .60	.50/ .50	.20/ 1.0	.50/ .50	1.0/ .67
Lebanon															
Grade 1	.92/ .57	.81/ 1.0	.71/ .83	1.0/ .82	.75/ .86	.77/ .77	.88/ .70	.83/ .83	.91/ .96	1.0/ .25	.36/ .80	.80/ 1.0	0.0/ 0.0	1.0/ 1.0	1.0/ 1.0
Grade 3	.94/ .81	.86/ .81	.78/ .88	.79/ 1.0	.86/ .75	.75/ .69	1.0/ .70	.88/ .88	.87/ .91	1.0/ .67	.50/ .60	1.0/ 1.0	.14/ 1.0	.67/ 1.0	1.0/ 1.0
Salt Lake City															
Grade 1	.80/ .76	.92/ .92	.83/ .63	1.0/ .70	.44/ .57	1.0/ .29	.90/ .82	.67/ 1.0	.75/ .91	.75/ .75	.50/ .40	.75/ .75	.10/ 1.0	.50/ 1.0	1.0/ .33
Grade 3	.73/ .70	1.0/ .89	1.0/ .71	.92/ 1.0	1.0/ .83	.75/ .56	.90/ .90	1.0/ .63	.79/ 1.0	1.0/ 1.0	.38/ .60	1.0/ 1.0	.13/ .33	.67/ 1.0	1.0/ .50
Tacoma															
Grade 1	.75/ .79	.95/ .80	.54/ .78	1.0/ .73	.89/ 1.0	.79/ .94	.86/ .60	1.0/ .89	.76/ .96	.60/ .75	.43/ .60	0.0/ 0.0	0.0/ 0.0	1.0/ 1.0	0.0/ 0.0
Grade 3	.95/ .73	.92/ .73	.75/ 1.0	.88/ .70	1.0/ .50	.58/ .82	.73/ .80	1.0/ 1.0	.93/ .93	1.0/ .50	.36/ .80	0.0/ 0.0	.25/ 1.0	1.0/ 1.0	1.0/ 1.0

Site and Grade Level	HOW Codes--Criterion Instances													Overall Accuracy Rate	
	Six or More						Five or Less								
	NV	X	A	B	DP	O	W	G	Q	T	N	U	H	WHAT	HOW
Berkeley															
Grade 1	1.0/ .35	1.0/ .80	.67/ .90	1.0/ .70	1.0/ .67	1.0/ .67	.67/ 1.0	0.0/ 0.0	1.0/ .50	1.0/ .50	.16/ .50	1.0/ .50	.50/ 1.0	.84	.74/ .78
Grade 3	.89/ .96	.83/ .83	.82/ .78	.88/ .54	1.0/ .78	1.0/ .25	.67/ 1.0	.25/ 1.0	1.0/ .50	1.0/ .67	.50/ .50	.50/ .25	1.0/ .67	.83	.83/ .73
Duluth															
Grade 1	.93/ .96	.67/ 1.0	.66/ 1.0	1.0/ .50	.88/ 1.0	.88/ 1.0	.50/ .50	0.0/ 0.0	1.0/ .50	.75/ 1.0	0.0/ 0.0	1.0/ .25	.50/ .50	.78	.74/ .83
Grade 3	.83/ .64	.83/ .63	.66/ .84	1.0/ .50	0.0/ 0.0	0.0/ 0.0	.50/ 1.0	0.0/ 0.0	0.0/ 0.0	1.0/ .67	.25/ .33	0.0/ 0.0	.20/ .50	.64	.67/ .56
Lebanon															
Grade 1	1.0 .96	1.0 .67	.89/ .69	0.0/ 0.0	0.0/ 0.0	.88/ .88	1.0/ .50	0.0/ 0.0	1.0/ 1.0	1.0/ .33	1.0/ 1.0	1.0/ 1.0	1.0/ .50	.81	.92/ .64
Grade 3	.96/ .93	1.0/ .83	.89/ .67	.92/ .69	1.0/ .71	.88/ .88	1.0/ 1.0	0.0/ 0.0	1.0/ 1.0	.50/ .50	.33/ .67	1.0/ .75	1.0/ .50	.83	.88/ .76
Salt Lake City															
Grade 1	.84/ .91	.80/ .80	.82/ .97	.86/ .46	.75/ 1.0	.75/ .43	.17/ 1.0	.25/ 1.0	1.0/ 1.0	.67/ .67	.38/ 1.0	.33/ .33	0.0 0.0	.74	.71/ .81
Grade 3	1.0/ .96	1.0/ 1.0	.70/ .97	.33/ .08	.78/ .88	1.0/ 1.0	.50/ 1.0	.50/ 1.0	1.0/ 1.0	.67/ .67	.33/ .33	.25/ .33	.25/ .50	.81	.75/ .81
Tacoma															
Grade 1	1.0/ .85	1.0/ 1.0	.90/ .77	1.0/ .31	.67/ .67	.22/ .25	1.0/ 1.0	0.0/ 0.0	1.0/ .50	1.0/ .67	.50 .33	1.0/ .50	1.0/ .50	.79	.82/ .67
Grade 3	1.0/ .56	1.0/ 1.0	.83/ .51	1.0/ .42	.82/ 1.0	1.0/ .50	0.0/ 0.0	.67/ 1.0	1.0/ 1.0	.67/ .67	.50/ .67	1.0/ .33	1.0/ .50	.79	.87 .59

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*The Accuracy Rate is given first and the Criterion Accuracy Rate is given second:

Accuracy Rate
Criterion Accuracy Rate

Accuracy Rate: Proportion correct of the total recorded.
Criterion Accuracy Rate: Proportion of times the Criterion Instances were recorded correctly.

Table L-2

ACCURACY RATES* FOR WHAT AND HOW CODES BY UNIVERSITY OF ARIZONA OBSERVERS

Site and Grade Level	WHAT Codes--Criterion Instances														
	Six or More									Five or Less					
	1Q	3	4	4NV	5NV	6	7	9	12	1	2	3NV	5	8	11
Des Moines															
Grade 1	.65/ .71	.77/ .92	.50/ .43	1.0/ .89	0.0/ 0.0	.25/ .07	.80/ .89	.54/ .88	.90/ ~~.67~~	.40/ .50	0/0	.50/ .50	0/0	1.0/ 1.0	0/0
Grade 3	.68/ .85	.93/ .89	.50/ .67	1.0/ .46	.36/ .83	.80/ .27	.89/ .73	1.0/ .86	.78/ .82	1.0/ .25	1.0/ .20	--	0/0	0/0	1.0/ .33
Fort Worth															
Grade 1	.78/ .86	.82/ .85	1.0/ .71	.91/ .91	.86/ .75	.73/ .69	.67/ .73	.78/ .78	.77/ .91	.50/ .50	.67/ .40	.75/ .75	.25/ 1.0	/ 0.0	/ 0.0
Grade 3	.93/ .65	.96/ .89	.80/ .80	1.0/ .78	.75/ .50	.49/ .81	1.0/ .46	.89/ .89	.82/ .86	1.0/ 1.0	.43/ .60	1.0/ 1.0	.33/ 1.0	.67/ 1.0	1.0/ .50
LaFayette															
Grade 1	.70/ .91	.94/ .77	.89/ .80	.77/ 1.0	.75/ .75	.77/ .93	.83/ .71	1.0/ .63	.94/ .94	.57/ 1.0	1.0/ .14	.60/ 1.0		.67/ 1.0	0.0/ 0.0
Grade 3	.95/ .82	.83/ .77	.57/ .44	.83/ 1.0	1.0/ .75	.67/ .80	.88/ .70	1.0/ .63	.82/ 1.0	.80/ 1.0	.57/ .80	.75/ .75	1.0/ 1.0	1.0/ 1.0	.75/ 1.0
Lakewood															
Grade 1	.93/ .74	.87/ .83	.88/ .88	.50/ .22	.47/ .88	.82/ 1.0	1.0/ .50	.73/ 1.0	.85/ .85	.80/ 1.0	.50/ 1.0	1.0/ .40	1.0/ 1.0	1.0/ 1.0	1.0/ 1.0
Grade 3	.68/ .62	1.0/ .68	.47/ .89	.73/ .89	.88/ .88	.75/ .60	.75/ .67	.71/ .71	.73/ .83	1.0/ .57	.40/ .33	1.0/ 1.0	.20/ 1.0	.67/ 1.0	1.0/ .50
Newark															
Grades 1 and 3	.85/ .81	1.0/ .89	.44/ .50	.80/ .73	1.0/ .63	.65/ .69	1.0/ .82	.86/ .75	.82/ .96	.80/ 1.0	.60/ .60	1.0/ 1.0	0.0/	1.0/ 1.0	.75/ 1.0
Lincoln															
Grade 1	.70/ .76	.86/ .75	.75/ .75	.86/ .55	.43/ .86	.81/ .81	.78/ .64	.50/ .29	.94/ .77	.57/ 1.0	.50/ .75	1.0/ .50	.17/ 1.0	.33/ .50	/ 0.0
Grade 3	.77/ .85	.92/ .89	.71/ .63	.78/ .70	.50/ .57	.91/ .65	1.0/ .82	.80/ .50	.82/ .90	.67/ 1.0	.33/ .20	.60/ 1.0	.13/ 1.0	.67/ 1.0	/ 0.0

Site and Grade Level	HOW Codes--Criterion Instances													Overall Accuracy Rate	
	Six or More						Five or Less								
	NV	X	A	B	DP	O	W	G	Q	T	N	U	H	WHAT	HOW
Des Moines															
Grade 1	.90/ .74	1.0/ .50	.81/ .72	.60/ .27	/ 0.0	1.0/ .50	/ 0.0	.17/ 1.0	.50/ 1.0	1.0/ 1.0	.20/ .33	/ 0.0	/ 0.0	.66	.73/ .55
Grade 3	.90/ .71	.80/ .80	.58/ .51	1.0/ .20	/ 0.0	1.0/ .25	/ 0.0	/ 0.0	.67/ 1.0	1.0/ .67	.67/ .67	/ 0.0	1.0/ 1.0	.67	.74/ .47
Fort Worth															
Grade 1	1.0/ .86	.80/ .67	.84/ 1.0	.80/ .62	1.0/ .88	.42/ 1.0	1.0/ .50	0.0/ 0.0	.22/ 1.0	.60/ 1.0	.25/ .33	1.0/ .50	.50/ .50	.77	.66/ .73
Grade 3	1.0/ .71	.83/ .83	.56/ .94	1.0/ .25	.88/ .88	.86/ .86	1.0/ .50	0.0/ 0.0	0.0/ 0.0	.75/ 1.0	.14/ .50	1.0/ .33	1.0/ .50	.77	.73/ .82
LaFayette															
Grade 1	.94/ .94	.57/ .80	.91/ .89	.88/ .54	1.0/ .11	1.0/ .88	/ 0.0	0.0/ 0.0	1.0/ .50	.50/ .50	0.0/ 0.0	1.0/ .25	.67/ 1.0	.80	.85/ .72
Grade 3	.96/ 1.0	.86/ .86	.61/ .68	1.0/ .25	/ 0.0	1.0/ 1.0	1.0/ .50	0.0/ 0.0	1.0/ 1.0	1.0/ .67	1.0/ .50	1.0/ 1.0	1.0/ .50	.81	.80/ .68
Lakewood															
Grade 1	.74/ .95	/ 0.0	.92/ .73	1.0/ .54	1.0/ 1.0	.67/ 1.0	/ 0.0	0.0/ 0.0	1.0/ 1.0	.33/ 1.0	0.0/ 0.0	.67/ .40	1.0/ .50	.79	.77/ .70
Grade 3	.91/ .78	.80/ .80	.96/ .67	/ 0.0	1.0/ .57	.64/ .88	1.0/ .50	0.0/ 0.0	1.0/ 1.0	1.0/ .33	0.0/ 0.0	.50/ .50	.50/ .50	.72	.83/ .63
Newark															
Grades 1 and 3	1.0/ .85	1.0/ .86	.91/ .56	1.0/ .50	1.0/ .11	1.0/ .75	1.0/ .50	0.0/ 0.0	1.0/ 1.0	1.0/ .50	1.0/ .25	1.0/ .25	1.0/ .50	.81	.96/ .59
Lincoln															
Grade 1	.77/ .83	.71/ .83	.91/ .89	.67/ .22	.40/ .25	.75/ .50	1.0/ .50	.33/ 1.0	1.0/ 1.0	.33/ .33	.50/ .50	1.0/ .33	1.0/ .50	.71	.77/ .69
Grade 3	.72/ .78	.67/ .67	.94/ .94	1.0/ .25	1.0/ .78	1.0/ .43	1.0/ .50	.25/ 1.0	.50/ 1.0	.33/ .33	.33/ .50	.50/ .50	1.0/ .50	.76	.78/ .72

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*The Accuracy Rate is given first and the Criterion Accuracy Rate is given second:

Accuracy Rate
Criterion Accuracy Rate

Accuracy Rate: Proportion correct of the total recorded.
Criterion Accurace Rate: Proportion of times the Criterion Instances were recorded correctly.

Table L-3

ACCURACY RATES* FOR WHAT AND HOW CODES BY BANK STREET OBSERVERS

Site and Grade Level	WHAT Codes--Criterion Instances														
	Six or More									Five or Less					
	1Q	3	4	4NV	5NV	6	7	9	12	1	2	3NV	5	8	11
Brattleboro															
Grade 1	.82/ .78	.88/ .88	.38/ .43	.73/ .73	.83/ .71	.78/ .54	1.0/ .78	.78/ .88	.69/ 1.0	1.0/ .50	.40/ .40	.33/ .25	0.0/	1.0/ 1.0	/ 0.0
Grade 3	.94/ .73	.96/ 1.0	.88/ 1.0	1.0/ 1.0	.88/ 1.0	1.0/ .87	1.0/ .80	.89/ 1.0	.94/ .94	.80/ 1.0	.29/ .67	1.0/ .80	.50/ 1.0	1.0/ 1.0	1.0/ 1.0
Fall River															
Grade 1	.87/ .68	.87/ .57	.78/ .88	1.0/ .88	.83/ 1.0	.47/ .62	.86/ .75	.88/ .88	.62/ .91	1.0/ .50	1.0/ .60	.67/ 1.0		1.0/ 1.0	.50/ .50
Grade 3	.79/ .55	1.0/ .48	.60/ 1.0	.89/ .73	.43/ .60	.41/ .44	.56/ .50	1.0/ .38	.58/ .92	.29/ .50	.33/ .40	.50/ .50	0.0/ 0.0	.50/ .50	/ 0.0
New York P.S. 243K															
Grades 1 and 3	.87/ .65	.94/ .74	.63/ .71	.67/ .36	.43/ .86	.78/ .54	.88/ .78	1.0/ .50	.77/ .85	.57/ 1.0	.43/ .75	1.0/ .33	0.0/	1.0/ 1.0	1.0/ 1.0
Philadelphia II															
Grade 1	.88/ .88	1.0/ 1.0	.75/ .75	.78/ 1.0	.78/ 1.0	.92/ .79	1.0/ .60	1.0/ .86	.90/ .81	.80/ 1.0	.67/ .80	1.0/ .50	.50/ 1.0	.40/ 1.0	--
Grade 3	.92/ .67	.83/ .79	.56/ .63	.91/ .91	1.0/ .38	.56/ .33	.70/ .88	.70/ .88	.86/ .86	1.0/ .25	.50/ .60	.67/ 1.0	0.0/ 0.0	1.0/ 1.0	1.0/ 1.0
Tuskegee															
Grade 1	.80/ .95	.92/ .89	.64/ .88	.89/ .73	.60/ .86	.77/ .71	1.0/ .83	1.0/ .75	.75/ .63	.67/ 1.0	1.0/ .20	.50/ 1.0	.17/ 1.0	1.0 1.0	/ 1.0
Grade 3	.77/ .77	.92/ .85	.86/ .75	.89/ .73	.78/ .88	.62/ .57	.90/ .82	1.0/ .89	.82/ .88	1.0/ .67	.25/ .25	1.0/ .67	.13/ 1.0	.67/ 1.0	1.0/ 1.0

Site and Grade Level	HOW Codes--Criterion Instances													Overall Accuracy Rate	
	Six or More						Five or Less								
	NV	X	A	B	DP	O	W	G	Q	T	N	U	H	WHAT	HOW
Brattleboro															
Grade 1	.86/ .86	1.0/ 1.0	.89/ .80	1.0/ .60	1.0/ .25	.70/ 1.0	.33/ 1.0	.20/ .25	1.0/ .50	.75/ .60	/ 0.0	.75/ 1.0	1.0/ .50	.74	.81/ .75
Grade 3	.91/ .96	1.0/ .80	.87/ .94	1.0/ .67	1.0/ .70	1.0/ .33	.50/ .50	.33/ 1.0	.67/ 1.0	1.0/ 1.0	/ 0.0	1.0/ .50	1.0/ .50	.91	.88/ .80
Fall River															
Grade 1	.94/ 1.0	1.0/ 1.0	1.0/ .81	1.0/ .80	1.0/ 1.0	1.0/ 1.0	1.0/ .50	0.0/	/ 0.0	1.0/ .50	0.0/ 0.0	1.0/ .25	1.0/ .50	.75	.91/ .80
Grade 3	.95/ .79	.50/ .33	.91/ .62	.33/ .09	/ 0.0	1.0/ .25	1.0/ .50	0.0/ 0.0	1.0/ 1.0	.33/ .33	.25/ .50	1.0/ .25	1.0/ .33	.59	.80/ .47
New York P.S. 243K															
Grades 1 and 3	.89/ .89	1.0/ 1.0	.83/ .71	1.0/ .44	/ 0.0	/.71/ .63	1.0/ 1.0	0.0/ 0.0	/ 0.0	.67/ 1.0	/ 0.0	/ 0.0	1.0/ .50	.69	.84/ .63
Philadelphia II															
Grade 1	.91/ .91	1.0/ .83	.93/ .96	/ 0.0	1.0/ .17	.86/ 1.0	1.0/ .50	0.0/	/ 0.0	1.0/ .33	0.0/ 0.0	.67/ .50	/ 0.0	.86	.85/ .66
Grade 3	.91/ .88	1.0/ 1.0	.93/ .47	1.0/ .22	.25/ .33	1.0/ .88	1.0/ 1.0	--	1.0/ 1.0	1.0/ .50	0.0 0.0	.67/ 1.0	.50/ 1.0	.70	.79/ .65
Tuskegee															
Grade 1	.96/ .96	1.0/ .20	.72/ .68	1.0/ .39	/ 0.0	1.0/ .63	1.0/ 1.0	0.0/ 0.0	1.0/ 1.0	.67/ .67	.25/ .33	/ 0.0	.50/ .50	.78	.81/ .62
Grade 3	1.0/ .85	1.0/ .80	.93/ .69	/ 0.0	1.0/ .67	.88/ 1.0	.67/ 1.0	1.0/ 1.0	1.0/ 1.0	.67/ .67	.33/ .67	/ 0.0	1.0/ .50	.78	.89/ .65

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*The Accuracy Rate is given first and the Criterion Accuracy Rate is given second:

Accuracy Rate

Criterion Accuracy Rate

Accuracy Rate: Proportion correct of the total recorded.
Criterion Accuracy Rate: Proportion of times the Criterion Instances were recorded correctly.

Table L-4

ACCURACY RATES* FOR WHAT AND HOW CODES BY UNIVERSITY OF OREGON OBSERVERS

Site and Grade Level	WHAT Codes--Criterion Instances														
	Six or More									Five or Less					
	1Q	3	4	4NV	5NV	6	7	9	12	1	2	3NV	5	8	11
East St. Louis															
Grade 1	.78/.78	.85/.74	.60/.50	.86/.75	.60/.86	.86/.75	.47/.78	.86/.75	.79/.88	1.0/.67	/0.0	1.0/.67	0.0/	/0.0	1.0/.6
Grade 3	.80/.76	.92/.85	.67/.57	.63/.56	.67/.29	.50/.29	.70/1.0	1.0/.43	.66/.91	.33/.75	.67/.50	1.0/.50	.25/1.0	1.0/.50	1.0/1.0
Racine															
Grade 1	.67/.90	.88/.82	.50/.71	.67/.36	.39/.71	0.0/0.0	1.0/.73	1.0/.86	.86/.60	.67/.67	.50/.20	1.0/1.0	.06/1.0	.50/1.0	1.0/1.0
Grade 3	.90/.82	1.0/.86	.88/.88	.91/.91	1.0/.75	.70/.93	.80/.80	.67/1.0	1.0/.86	.67/.50	.57/.80	1.0/1.0	.33/1.0	1.0/1.0	1.0/1.0
Tupelo															
Grade 1	.76/.84	.96/.92	.88/.88	.82/.90	1.0/.75	.92/.86	1.0/1.0	.88/.88	.95/.90	1.0/1.0	.50/.60	.75/1.0		1.0/1.0	1.0/1.0
Grade 3	.76/.91	.84/.81	.70/.88	1.0/.91	.80/.67	.88/.88	.89/.80	1.0/.78	.61/.81	.75/.75	/0.0	.75/1.0	1.0/1.0	1.0/1.0	/0.0
Providence															
Grade 1	.72/.86	.96/.89	.88/.70	.33/.33	.64/.58	.80/.31	.82/.90	.90/1.0	.79/1.0	.67/.50	/0.0	1.0/1.0	0.0/0.0	1.0/1.0	1.0/1.0
Grade 3	.85/.73	.89/.82	.80/.44	.80/.40	.75/1.0	.57/.62	.75/.60	1.0/.67	.67/.91	.22/.50	1.0/.40	1.0/.67	0.0/	/0.0	1.0/1.0
New York P.S. 137K															
Grade 1	.87/.65	.94/.74	.63/.71	.67/.36	.43/.86	.78/.54	.88/.78	1.0/.50	.77/.85	.57/1.0	.43/.75	1.0/.33	0.0/	1.0/1.0	1.0/1.0
Grade 3	.94/.71	.86/.80	.88/1.0	.90/.90	.86/.75	.33/.29	.75/.60	1.0/.50	.82/.78	.50/.20	.50/.75	1.0/1.0	.06/1.0	.50/1.0	1.0/1.0

Site and Grade Level	HOW Codes--Criterion Instances													Overall Accuracy Rate	
	Six or More						Five or Less								
	NV	X	A	B	DP	O	W	G	Q	T	N	U	H	WHAT	HOW
East St. Louis															
Grade 1	.91/.95	1.0/.67	.42/.75	.83/.83	/0.0	/0.0	1.0/.50	0.0/0.0	/0.0	.25/1.0	/0.0	/0.0	/0.0	.73	.58/.60
Grade 3	.91/.50	1.0/.67	.50/.51	.50/.22	/0.0	0.0/0.0	/0.0	/0.0	1.0/.50	.75/1.0	0.0/0.0	0.0/0.0	.33/.50	.71	.59/.44
Racine															
Grade 1	.96/.96	1.0/.83	.79/.43	1.0/.55	1.0/.78	.83/.63	1.0/.50	.33/1.0	1.0/1.0	1.0/1.0	.67/1.0	1.0/.40	.50/.50	.64	.88/.66
Grade 3	.92/.89	.75/.86	.84/1.0	1.0/.67	.67/.86	.83/.63	.50/1.0	.25/1.0	1.0/1.0	.50/.67	.33/.67	/0.0	0.0/0.0	.86	.75/.83
Tupelo															
Grade 1	.96/.92	1.0/.80	.90/.51	1.0/.50	/0.0	.88/1.0	.67/1.0	0.0/0.0	.67/1.0	.50/.50	0.0/0.0	1.0/.25	1.0/.50	.80	.96/.84
Grade 3	1.0/.96	1.0/1.0	.96/.77	1.0/.80		1.0/.88		.33/.50	1.0/1.0	1.0/1.0	/0.0	1.0/1.0	1.0/1.0	.80	.88/.63
Providence															
Grade 1	.96/.89	.80/.80	.94/.92	.90/.75	.86/1.0	.36/.50	.50/.50	.14/1.0	.50/.50	1.0/.33	0.0/0.0	1.0/.25	1.0/.50	.76	.79/.78
Grade 3	.94/.59	1.0/.83	.63/.77	/0.0	/0.0	1.0/.86	/0.0	0.0/	1.0/.50	1.0/1.0	/0.0	1.0/.50	1.0/.50	.70	.67/.56
New York P.S. 137K															
Grade 1	.89/.89	1.0/1.0	.83/.71	1.0/.44	/0.0	.71/.63	1.0/1.0	0.0/0.0	/0.0	.67/1.0	/0.0	/0.0	1.0/.50	.69	.84/.63
Grade 3	.89/.96	1.0/1.0	.44/.49	1.0/.73	.82/1.0	.60/1.0	/0.0	0.0/0.0	1.0/.50	1.0/1.0	.67/.67	1.0/.75	1.0/.50	.70	.70/.69

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*The Accuracy Race is given first and the Criterion Accuracy Rate is given second:

Accuracy Rate / Criterion Accuracy Rate

Accuracy Rate: Proportion correct of the total recorded.
Criterion Accuracy Rate: Proportion of times the Criterion Instances were recorded correctly.

Table L-5

ACCURACY RATES* FOR WHAT AND HOW CODES BY UNIVERSITY OF KANSAS OBSERVERS

Site and Grade Level	WHAT Codes--Criterion Instances														
	Six or More									Five or Less					
	10	3	4	4NV	5NV	6	7	9	12	1	2	3NV	5	8	11
New York P.S. 77X															
Grades 1 and 3	.94/ .71	.86/ .80	.88/ 1.0	.90/ .90	.86/ .75	.33/ .29	.75/ .60	1.0/ .50	.82/ .78	.50/ .20	.50/ .75	1.0/ 1.0	.06/ 1.0	.50/ 1.0	1.0/ 1.0
Philadelphia VI															
Grade 1	.83/ .91	.96/ .89	1.0/ 1.0	.92/ 1.0	1.0/ .75	.71. .94	.80/ .73	.88/ .78	.88/ .91	1.0/ .75	1.0/ .60	1.0/ 1.0	/ 0.0	.67/ 1.0	1.0/ 1.0
Grade 3	.74/ .70	.91/ .73	.90/ .75	.89/ .73	.75/ .75	.64/ .60	.78/ .78	1.0/ .63	.94/ .68	.60/ .75	.38/ .60	1.0/ 1.0	.25/ 1.0	.33/ 1.0	1.0/ 1.0
Portageville															
Grade 1	.78/ .67	.88/ .81	.75/ .86	1.0/ .89	.88/ 1.0	.46/ .35	.86/ .55	.80/ .57	.96/ 1.0	1.0/ .67	.38/ .60	1.0/ 1.0	.09/ 1.0	1.0/ 1.0	1.0/ 1.0
Grade 3	.72/ .72	.82/ .69	.44/ .57	1.0/ .64	.64/ 1.0	.54/ .41	.75/ .82	1.0/ .75	.92/ .96	1.0/ .20	.40/ .50	/ 0.0	.08/ 1.0	1.0/ 1.0	1.0/ 1.0
Kansas City															
Grade 1	.91/ 1.0	1.0/ .87	.80/ .67	1.0/ .90	.75/ .86	.63/ .75	1.0/ .88	.75/ .86	1.0/ .96	1.0/ .50	1.0/ .50	.75/ 1.0	0.0/ 0.0	.50/ 1.0	1.0/ 1.0
Grade 3	.65/ 1.0	.93/ .74	.80/ .80	1.0/ .83	.88/ .57	.75/ .40	.89/ .80	.80/ .89	.95/ 1.0	1.0/ .33	1.0/ .17	.75/ .75	.08/ .50	.50/ 1.0	.75/ 1.0
Louisville															
Grade 1	.78/ .95	.90/ .81	.63/ .71	.86/ .75	.70/ 1.0	.62/ .94	1.0/ .67	1.0/ .88	.93/ .74	1.0/ .50	1.0/ .20	1.0/ .50	0.0/	1.0/ 1.0	/ 0.0
Grade 3	.86/ .63	.91/ .86	.83/ .83	.91/ 1.0	.70/ .78	.60/ .38	1.0/ 1.0	1.0/ .38	1.0/ .85	.40/ .50	.13/ .20	1.0/ 1.0	.06/ 1.0	1.0/ 1.0	/ 0.0

Site and Grade Level	HOW Codes--Criterion Instances													Overall Accuracy Rate	
	Six or More						Five or Less								
	NV	X	A	B	DP	O	W	G	Q	T	N	U	H	WHAT	HOW
New York P.S. 77X															
Grades 1 and 3	.89/ .96	1.0/ 1.0	.44/ .49	1.0/ .73	.82/ 1.0	.60/ 1.0	/ 0.0	0.0/ 0.0	1.0/ .50	1.0/ 1.0	.67/ .67	1.0/ .75	1.0/ .50	.70	.70/ .69
Philadelphia VI															
Grade 1	1.0/ .88	.71/ 1.0	.92/ .97	1.0/ .56	1.0/ .88	1.0/ .25	1.0/ 1.0	.50/ 1.0	1.0/ 1.0	1.0/ .67	0.0/ 0.0	.50/ .75	/ 0.0	.88	.89/ .75
Grade 3	.92/ .89	.83/ 1.0	.84/ .81	1.0/ .56	.88/ .88	1.0/ .63	1.0/ .50	0.0/ 0.0	1.0/ .50	1.0/ .50	1.0/ .50	1.0/ .50	1.0/ .50	.72	.89/ .75
Portageville															
Grade 1	.96/ .96	1.0/ .57	.91/ .58	1.0/ .23	1.0/ 1.0	1.0/ .63	1.0/ 1.0	0.0/ 0.0	.50/ .50	1.0/ 1.0	.50/ 1.0	.33/ .25	/ 0.0	.75	.86/ .66
Grade 3	.95/ .77	1.0/ .57	.96/ .61	1.0/ .41	1.0/ .78	1.0/ .57	1.0/ 1.0	0.0/ 0.0	1.0/ .50	.75/ 1.0	.50/ 1.0	.50/ .50	1.0/ .50	.70	.89/ .65
Kansas City															
Grade 1	.95/ .95	1.0/ 1.0	.68/ .86	.86/ .55	1.0/ .13	1.0/ .63	1.0/ 1.0	0.0/ 0.0	1.0/ 1.0	1.0/ .67	.33/ 1.0	1.0/ .25	1.0/ .50	.86	.77/ .73
Grade 3	.91/ .73	1.0/ 1.0	.85/ .81	1.0/ .73	1.0/ .67	1.0/ .86	1.0/ 1.0	.20/ 1.0	1.0/ 1.0	1.0/ 1.0	/ 0.0	1.0/ .50	1.0/ .50	.75	.88/ .77
Louisville															
Grade 1	.89/ .84	.83/ .83	.90/ .90	1.0/ .50	.82/ 1.0	1.0/ .80	1.0/ .50	0.0/ 0.0	1.0/ 1.0	1.0/ 1.0		/ 0.0	.25/ 1.0	.79	.83/ .79
Grade 3	.86/ .96	1.0/ .83	.85/ .97	1.0/ .50	/ 0.0	.57/ 1.0	/ 0.0	0.0/ 0.0	1.0/ .33	1.0/ 1.0	/ 0.0	.75/ 1.0	1.0/ .50	.71	.81/ .75

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*The Accuracy Rate is given first and the Criterion Accuracy Rate is given second:

Accuracy Rate
Criterion Accuracy Rate

Accuracy Rate: Proportion correct of the total recorded.
Criterion Accuracy Rate: Proportion of times the Criterion Instances were recorded correctly.

Table L-6

ACCURACY RATES* FOR WHAT AND HOW CODES BY HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION OBSERVERS

Site and Grade Level	WHAT Codes--Criterion Instances														
	Six or More									Five or Less					
	1Q	3	4	4NV	5NV	6	7	9	12	1	2	3NV	5	8	11
Greenwood															
Grade 1	.68/ .85	.86/ .79	.38/ .38	.89/ .89	.71/ .63	.67/ .13	.67/ .67	.86/ .67	.82/ .82	1.0/ 1.0	0.0/ 0.0	.75/ 1.0	.07/ 1.0	.50/ 1.0	1.0/ 1.0
Grade 3	.85/ .90	.95/ .79	1.0/ .86	0.0/ 0.0	.70/ .88	.60/ .40	.86/ .75	.86/ .75	.77/ 1.0	1.0/ .33	.50/ .40	1.0/ .67	.06/ 1.0	1.0/ .50	1.0/ 1.0
Ft. Walton Beach															
Grade 1	1.0/ .96	.94/ .80	.80/ 1.0	.91/ .91	.86/ 1.0	.62/ .94	1.0/ .50	.88/ .88	.90/ .86	.50/ .25	1.0/ .75	1.0/ 1.0	.67/ 1.0	1.0/ 1.0	1.0/ 1.0
Grade 3	1.0/ .81	.96/ .93	.71/ .83	1.0/ .82	.88/ 1.0	.93/ .75	1.0/ .89	.78/ .88	.92/ .96	1.0/ .60	.56/ 1.0	1.0/ 1.0	.17/ 1.0	1.0/ 1.0	1.0/ 1.0
Greeley															
Grades 1 and 3	.77/ .81	.96/ .90	1.0/ 1.0	1.0/ .90	.78/ .88	.93/ .81	1.0/ .82	.86/ .75	.96/ 1.0	/ 0.0	.43/ .60	1.0/ 1.0	.13/ 1.0	1.0/ 1.0	1.0/ 1.0
Denver															
Grade 1	.86/ .90	1.0/ .91	1.0/ .50	1.0/ .67	.55/ 1.0	.55/ .75	1.0/ .89	.88/ .88	.91/ .95	.33/ .33	.50/ .40	1.0/ 1.0	.50/ 1.0	1.0/ 1.0	
Grade 3	.64/ .82	.83/ .68	.56/ .71	.80/ .50	.64/ .88	.79/ .85	1.0/ .71	1.0/ .29	.85/ .92	.50/ .33	.50/ 40	.67/ 1.0	0.0/ 0.0	1.0/ 1.0	.75/ 1.0
New York P.S. 92M															
Grades 1 and 3	.63/ .77	.91/ .79	.60/ 1.0	.83/ .50	.55/ .86	.38/ .23	1.0/ .89	1.0/ .63	.80/ .80	0.0/ 0.0	.75/ .50	1.0/ 1.0	0.0/	0.0/ 0.0	1.0/ 1.0

Site and Grade Level	HOW Codes--Criterion Instances													Overall Accuracy Rate	
	Six or More						Five or Less								
	NV	X	A	B	DP	O	W	G	Q	T	N	U	M	WHAT	HOW
Greenwood															
Grade 1	.79/ .83	1.0/ 1.0	.87/ .79	1.0/ .44	1.0/ .44	.86/ 1.0	1.0/ 1.0	0.0/ 0.0	1.0/ 1.0	.60/ .10	.57/ .67	.50/ .33	1.0/ .50	.68	.81/ .74
Grade 3	.89/ .96	1.0/ 1.0	.89/ .65	1.0/ .20	.80/ .44	.50/ .29	1.0/ .50	/ 0.0	1.0/ 1.0	1.0/ .67	1.0/ 1.0	.33/ 1.0	1.0/ .33	.71	.86/ .65
Ft. Walton Beach															
Grade 1	1.0/ .89	1.0/ .71	.80/ .76	1.0/ .55	1.0/ .44	1.0/ .86	1.0/ .50	0.0/ 0.0	1.0/ .50	/ 0.0	1.0/ .33	1.0/ .50	1.0/ .50	.86	.89/ .69
Grade 3	.93/ .96	.67/ .86	.97/ .80	1.0/ .55	1.0/ .63	.78/ .88	.67/ 1.0	0.0/ 0.0	.67/ 1.0	1.0/ 1.0	.67/ 1.0	1.0/ .50	1.0/ 1.0	.88	.87/ .81
Greeley															
Grades 1 and 3	.96/ .88	.75/ .86	.94/ .83	/ 0.0	/ 0.0	1.0/ .88	1.0/ .50	0.0/ 0.0	1.0/ 1.0	.33/ .50	.33/ .33	.38/ .75	/ 0.0	.85	.83/ .65
Denver															
Grade 1	.96/ 1.0	1.0/ 1.0	.62/ .96	1.0/ .73	1.0/ .78	1.0/ .33	1.0/ .50	0.0/ 0.0	1.0/ 1.0	1.0/ .50	0.0/ 0.0	1.0/ .25	/ 0.0	.83	.80/ .79
Grade 3	.95/ .83	1.0/ .60	.81/ .75	1.0/ .20	0.0/ 0.0	.67/ .50	.67/ 1.0	/ 0.0	1.0/ 1.0	/ 0.0	.50/ .33	/ 0.0	.50/ .50	.74	.79/ .56
New York P.S. 92M															
Grades 1 and 3	1.0/ .96	1.0/ 1.0	.70/ .61	1.0/ .60	.63/ .83	.27/ .57	/ 0.0	0.0/ 0.0	1.0/ 1.0	0.0/ 0.0	.67/ .50	/ 0.0	/ 0.0	.69	.72/ .67

The Accuracy Rate is given first and the Criterion Accuracy Rate is given second:

Accuracy Rate
Criterion Accuracy Rate

Accuracy Rate: Proportion correct of the total recorded.
Criterion Accuracy Rate: Proportion of times the Criterion Instances were recorded correctly.

Table L-7

ACCURACY RATES* FOR WHAT AND HOW CODES BY EDUCATION DEVELOPMENT CENTER OBSERVERS

Site and Grade Level	WHAT Codes--Criterion Instances														
	Six or More									Five or Less					
	1Q	3	4	4NV	5NV	6	7	9	12	1	2	3NV	5	8	11
Burlington															
Grade 1	.76/ .80	.96/ .89	.78/ 1.0	1.0/ .91	.75/ .43	.70/ .50	1.0/ .73	.83/ .71	.88/ .96	1.0/ .75	.67/ .80	.50/ 1.0	.11/ 1.0	1.0/ .50	1.0/ 1.0
Grade 3	.94/ .84	.95/ .83	1.0/ .71	.89/ 1.0	.83/ .83	.77/ .81	.75/ .90	.88/ .88	.96/ .96	1.0/ .80	.57/ .80	.67/ 1.0	.50/ 1.0	1.0/ 1.0	1.0/ 1.0
Philadelphia IV															
Grade 1	.92/ .61	1.0/ .76	.60/ .38	.80/ .44	.75/ .86	.64/ .94	.78/ .78	.88/ .88	.77/ 1.0	.75/ .75	.40/ .80	1.0/ .67	0.0/ 0.0	.67/ 1.0	1.0/ 1.0
Grade 3	.69/ .45	.73/ .76	.60/ .75	.92/ 1.0	.86/ .75	.57/ .24	.63/ .50	.75/ .43	.71/ .63	1.0/ .75	.33/ 1.0	.67/ .50	0.0/	.33/ 1.0	.50/ .33
Rosebud															
Grade 1	.83/ .91	.92/ .88	1.0/ .30	.86/ .60	.83/ .72	.70/ .94	1.0/ .78	.75/ .75	.77/ 1.0	1.0/ .40	1.0/ .80	.75/ 1.0	0.0/ .0	1.0/ 1.0	1.0/ 1.0
Grade 3	.93/ .67	.93/ .86	.80/ .50	.83/ .91	.75/ .43	.88/ .88	.80/ .89	.89/ .89	.77/ .87	1.0/ 1.0	.40/ .80	.50/ .67	0.0/ 0.0	1.0/ 1.0	1.0/ 1.0
Smithfield															
Grade 1	.89/ .89	.96/ .89	1.0/ .71	1.0/ .91	.67/ 1.0	.88/ 1.0	.88/ .78	.86/ .50	.96/ .96	.75/ .75	.67/ .50	.67/ 1.0	/ 0.0	.67/ 1.0	1.0/ 1.0
Grade 3	.91/ .71	.93/ .82	.88/ .70	.89/ .73	.40/ .50	.47/ 1.0	.83/ .71	1.0/ .67	.90/ .85	.75/ 1.0	.33/ .50	.75/ 1.0	0.0/ 0.0		

Site and Grade Level	HOW Codes--Criterion Instances													Overall Accuracy Rate	
	Six or More						Five or Less								
	NV	X	A	B	DP	O	W	G	Q	T	N	U	H	WHAT	HOW
Burlington															
Grade 1	.96/ .82	.71/ .83	.94/ .94	.82/ .75	.65/ .71	1.0/ .63	.67/ 1.0	.50/ 1.0	1.0/ 1.0	.50/ 1.0	.60/ 1.0	1.0/ .50	1.0/ .50	.80	.84/ .83
Grade 3	.95/ .86	.75/ 1.0	.74/ .81	1.0/ .46	.57/ .67	.67/ .25	/ 0.0	0.0/ 0.0	.67/ 1.0	.33/ 1.0	.67/ .67	.80/ 1.0	.33/ .50	.87	.72/ .72
Philadelphia IV															
Grade 1	1.0/ .96	1.0/ .75	.93/ .96	1.0/ .50	1.0/ 1.0	1.0/ 1.0	1.0/ 1.0	0.0/ 0.0	.67/ 1.0	1.0/ .50	0.0/ 0.0	.75/ .75	1.0/ 1.0	.77	.91/ .87
Grade 3	.96/ .92	1.0/ 1.0	.88/ .75	1.0/ .80	1.0/ 1.0	1.0/ 1.0		0.0/ 0.0	/ 0.0	.50/ .50	0.0/ 0.0	.67/ 1.0	/ 0.0	.62	.87/ .80
Rosebud															
Grade 1	.91/ .79	1.0/ .75	.58/ .88	1.0/ .08	.90/ 1.0	1.0/ .50	1.0/ 1.0	0.0/ 0.0	1.0/ 1.0	1.0/ .67	.67/ .67	/ 0.0	/ 0.0	.81	.74/ .69
Grade 3	.86/ .72	1.0/ .57	1.0/ .53	1.0/ .15	/ 0.0	1.0/ 1.0	1.0/ 1.0	0.0/ 0.0	1.0/ .50	1.0/ .50	.14/ .43	1.0/ .50	/ 0.0	.80	.84/ .51
Smithfield															
Grade 1	.92/ .88	1.0/ .83	.75/ .71	1.0/ .55	1.0/ .78	1.0/ .46	/ 0.0	.50/ 1.0	.75/ .75	.22/ .40	.20/ .50	/ 0.0	.33/ .50	.89	.75/ .67
Grade 3	1.0/ .91	.67/ 1.0	.57/ 1.0	1.0/ .63	.50/ 1.0	1.0/ .50	1.0/ 1.0	0.0/ 0.0	1.0/ 1.0	.60/ .75	.67/ .50	.50/ .50	/ 0.0	.77	.72/ .95

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*The Accuracy Rate is given first and the Criterion Accuracy Rate is given second:

Accuracy Rate
Criterion Accuracy Rate

Accuracy Rate: Proportion correct of the total recorded.
Criterion Accuracy Rate: Proportion of times the Criterion Instances were recorded correctly.

Appendix M

SPONSOR IMPLEMENTATION VARIABLES AND CORRESPONDING QUINTILES

Table M-1

NON-FOLLOW THROUGH QUINTILES FOR SPONSOR IMPLEMENTATION VARIABLES

Variables		Sponsor-Selected Variables[*]									Non-Follow Through Quintiles											
		Far West[**]		University of Arizona	Bank Street	University of Oregon[**]		University of Kansas	High/Scope	EDC	First Grade						Third Grade					
No.	Names	1	3			1	3				Minimum[***]	1st	2nd	3rd	4th	Maximum[***]	Minimum[***]	1st	2nd	3rd	4th	Maximum[***]
24	Child selection of seating and work groups	X	X	X	X				X	X	0	0	0	1.0	1.0	2.0	0	0	0	1.0	2.0	4.0
25	Games, toys, play equipment present	X	X	X	X				X	X	1.0	3.0	4.0	5.0	6.0	9.0	1.0	2.0	3.0	4.0	5.0	7.0
39	General equipment, materials present	X	X					X		X	4.0	7.0	8.0	9.0	10.0	11.0	1.0	7.0	8.0	9.0	10.0	12.0
65	Guessing games, table games, puzzles			X				X	X		0	0	0	0	.51	7.82	0	0	0	.31	1.17	14.79
66	Numbers, math, arithmetic	X	X	X	X	X	X	X	X	X	0	11.23	16.97	19.32	23.26	32.77	9.71	16.01	20.12	23.85	26.56	38.70
67	Reading, alphabet, language development	X	X	X	X	X	X	X	X	X	19.50	38.82	46.36	54.31	58.61	84.20	32.56	38.61	45.84	50.18	55.41	73.52
70	Sewing, cooking, pounding			X					X		0	0	0	0	0	1.69	0	0	0	0	0	4.76
71	Blocks, trucks								X		0	0	0	0	.33	1.41	0	0	0	0	.45	1.80
74	Practical skills acquisition				X						0	0	0	0	0	.75	0	0	0	0	0	1.64
83	Wide variety of activities, over one day	X	X	X	X				X	X	2.00	4.00	4.67	5.33	6.33	7.33	2.67	4.33	4.67	5.00	5.67	8.67
86	Teacher with one child	X	X	X	X				X		0	0	1.85	4.55	11.86	61.11	0	0	1.64	4.41	11.76	58.82
87	Teacher with two children				X						0	0	0	1.61	3.70	10.00	0	0	0	0	4.35	24.59
88	Teacher with small group			X	X	X	X	X	X		0	6.90	11.67	21.67	38.38	88.06	0	0	9.43	14.63	22.41	42.86
92	Aide with one child	X	X		X						0	0	0	0	3.70	84.62	0	0	0	1.69	38.46	100.00
94	Aide with small group			X		X	X	X	X		0	0	0	15.38	42.86	80.65	0	0	0	0	22.58	100.00
114	One child independent	X	X	X	X					X	0	.25	1.05	1.69	3.66	6.41	0	.13	.57	1.06	2.21	10.63
115	Two children independent									X	0	0	1.17	2.26	4.20	8.23	0	0	.52	1.32	2.32	11.60
116	Small group of children independent	X	X		X					X	0	2.57	5.14	13.28	17.20	51.87	0	1.93	4.41	7.54	13.49	60.15
239	Math or science equipment/Academic Activities	X	X		X				X	X	0	0	0	5.56	10.53	44.00	0	0	0	0	5.26	26.53
240	Texts, workbooks/Academic Activities					X	X	X			16.18	41.86	57.69	73.68	85.45	98.25	7.32	40.54	62.75	78.57	87.27	100.00
343a	Child to adult, all verbal except response				X						0	1.17	1.85	2.53	4.16	7.25	.21	.82	2.43	3.41	4.95	10.32
344a	Individual child verbal interaction with with adult	X	X	X	X	X	X	X	X	X	12.40	20.55	23.75	27.31	29.89	42.47	7.83	20.20	23.49	28.67	33.26	48.10
350a	Child questions to adult	X	X	X	X				X	X	0	.38	.65	1.14	1.75	3.41	0	.52	.81	1.38	2.49	4.45
363a	Child group response to adult academic commands, requests, or direct questions					X	X				0	.09	1.89	2.43	3.22	5.00	.03	.45	1.00	1.24	2.10	3.14
372a	Child presenting information to a group				X				X		0	0	0	0	.14	3.35	0	0	0	0	.19	5.75
375a	Adult instructs an individual child	X	X							X	0	.50	.85	1.50	2.85	6.88	.13	.47	1.45	2.11	3.45	13.48
376a	Adult instructs a group					X	X				0	4.55	7.55	8.77	10.34	22.31	.13	2.40	5.32	7.70	10.55	20.35
390a	Adult task-related comments to children								X	X	0	.32	.57	1.05	1.90	11.21	0	.11	.59	1.17	1.95	6.57
394a	All adult acknowledgment to children	X	X		X	X	X	X	X		.50	1.44	2.29	2.95	3.65	7.88	.13	1.59	1.76	2.50	3.17	7.53
398a	All adult praise to children			X		X	X	X			.09	.49	.78	1.08	1.69	3.15	0	.17	.44	.64	1.03	2.47
412a	Adult feedback to child response to adult academic commands, requests, or questions					X	X	X			0	1.11	1.84	2.53	3.47	5.38	.05	.82	1.38	1.98	2.63	5.66
420a	Adult attentive to a small group	X	X			X	X		X		0	.05	.31	.84	1.32	6.56	0	.05	.10	.32	.64	3.53
421a	Adult attentive to one child	X	X	X	X			X	X		.03	1.05	2.56	3.60	5.10	16.62	0	2.26	3.14	4.90	7.47	10.87
423a	Positive behavior, adults to children	X	X	X	X						0	.05	.20	.33	.98	3.09	0	.03	.17	.33	.65	2.88
435a	Total academic verbal interactions					X	X				15.30	30.00	37.97	42.90	48.78	59.20	14.92	25.74	32.62	40.77	49.05	66.23
438a	Adult focus, one child	X	X		X			X	X	X	14.30	16.38	18.85	20.85	24.83	34.42	7.36	17.49	20.52	22.74	26.13	37.40
440a	Adult focus, small group					X	X		X		.03	1.02	2.46	3.91	7.82	15.90	0	.43	.92	2.17	3.97	10.18
444a	Adult movement	X	X								.05	.95	1.98	3.08	5.00	13.32	.13	1.73	2.69	3.89	5.18	12.10
450a	All child open-ended questions									X	0	0	0	0	0	.05	0	0	0	0	0	.10
451a	Adult academic commands, requests, and direct questions to children					X	X	X			3.10	5.18	6.84	7.78	9.02	13.31	1.23	3.53	5.13	7.66	9.21	12.80
452a	Adult open-ended questions to children	X	X	X	X				X	X	0	.10	.17	.23	.41	1.75	0	.03	.16	.45	.58	1.41
453a	Adult response to child's question with a question								X	X	0	0	0	.05	.13	.70	0	0	0	.03	.14	.71
454a	Child's extended response to questions			X	X						0	.06	.13	.47	.88	2.62	0	.05	.20	.51	.80	2.72
456a	All child task-related comments	X	X	X					X		0	.55	1.45	1.82	3.00	10.24	0	.49	1.08	1.90	3.21	9.88
457a	All adult positive corrective feedback	X	X			X	X	X			.58	1.21	1.67	2.20	3.00	4.57	.13	.77	1.49	2.00	2.55	4.55
460a	All child positive affect	X	X	X						X	0	.05	.15	.41	1.05	4.37	0	.06	.13	.30	.65	6.57
469a	All adult reinforcement with tokens							X			0	0	0	0	0	.15	0	0	0	0	0	.13
509c	Child self-instruction, academic					X	X				0	6.25	13.05	16.58	23.00	36.45	6.30	12.15	16.28	18.70	24.65	38.81
510c	Child self-instruction, objects				X				X	X	0	0	0	.25	3.95	19.94	0	0	0	0	4.90	23.50
513c	Child task persistence				X			X	X		0	1.25	2.05	2.90	4.20	6.80	0	1.80	2.60	3.24	3.90	6.56
514c	Two children working together, using concrete objects								X		0	0	0	0	0	0	0	0	0	0	0	.50
515c	Small group working together, using concrete objects				X				X		0	0	0	0	0	0	0	0	0	0	0	0
516c	Social interaction among children	X	X		X					X	.20	1.00	1.35	1.85	4.35	9.91	0	.90	2.26	3.16	4.45	11.25
574c	Child movement	X	X							X	.20	.80	1.20	2.32	2.94	4.80	0	.56	1.15	1.78	2.75	5.65
599c	Child self-instruction, nonacademic	X	X	X					X		0	0	.50	2.89	4.60	10.89	0	0	.28	2.25	6.20	20.15

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[*] An X indicates a variable selected by a sponsor.

[**] Separate variables for first and third grades are shown for Far West Lab and University of Oregon.

[***] Minimum and maximum represents the lowest and highest *scores* for Non-Follow Through.

Table M-2

VARIABLE: PEI 24 CHILD SELECTION OF SEATING AND WORK GROUPS

GRADE:	FIRST					THIRD				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201					4		2		1	1
204					4					4
207					4				2	2
209					4			1	2	1
213					4				1	3
TOTAL					20		2	1	6	11
*PERCENT					100		10	5	30	55

PEI 25 GAMES, TOYS, PLAY EQUIPMENT PRESENT

GRADE:	FIRST					THIRD				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201				2	2					4
204	3		1			1	2	1		
207					4					4
209				1	3				3	1
213			1	2	1			2	1	1
TOTAL	3		2	5	10	1	2	3	4	10
*PERCENT	15		10	25	50	5	10	15	20	50

PEI 39 GENERAL EQUIPMENT, MATERIALS PRESENT

GRADE:	FIRST					THIRD				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201			1	1	2			1	2	1
204				3	1					4
207			2	1	1			1	3	
209			1	1	2					4
213			3	1					2	2
TOTAL			7	7	6			2	7	11
*PERCENT			35	35	30			10	35	55

VARIABLE: CCL-A 66 NUMBERS, MATH, ARITHMETIC

GRADE:	FIRST					THIRD				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201		2		2		2		1		1
204	2	1			1			1	3	
207	1	2		1		3		1		
209		3		1		1	2			1
213	1	2	1			3			1	
TOTAL	4	10	1	4	1	9	2	3	4	2
*PERCENT	20	50	5	20	5	45	10	15	20	10

CCL-A 67 READING, ALPHABET, LANGUAGE DEVELOPMENT

GRADE:	FIRST					THIRD				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201	3				1	1	1		2	
204			1	2	1		2	1		1
207	4					4				
209	4					3			1	
213	1	2	1			1	1	1		1
TOTAL	12	2	2	2	2	9	4	2	3	2
*PERCENT	60	10	10	10	10	45	20	10	15	10

CCL-A 83 VARIETY OF ACTIVITIES, OVER ONE DAY

GRADE:	FIRST					THIRD				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201					4				1	3
204				3	1				1	3
207					4					4
209					4			1	1	2
213					4			2	1	1
TOTAL				3	17			3	4	13
*PERCENT				15	85			15	20	65

VARIABLE: CCL-B 86 TEACHER WITH ONE CHILD

GRADE:	FIRST					THIRD				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201				4		1		1		2
204		1		1	2				1	3
207				1	3			1		3
209					4				1	3
213					4					4
TOTAL		1		6	13	1		2	2	15
*PERCENT		5		30	65	5		10	10	75

CCL-B 92 AIDE WITH ONE CHILD

GRADE:	FIRST					THIRD				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201				1	3		1		3	
204					4				4	
207					4				4	
209					4				3	1
213				1	3				4	
TOTAL				2	18		1		18	1
*PERCENT				10	90		5		90	5

CCL-B 114 ONE CHILD INDEPENDENT

GRADE:	FIRST					THIRD				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201				3	1					4
204				1	3					4
207					4				1	3
209					4					4
213					4					4
TOTAL				4	16				1	19
*PERCENT				20	80				5	95

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-2 (Continued)

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FAR WEST LABORATORY :                FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES            PAGE  2- 7

VARIABLE:  CCL-B 116  SMALL GROUP OF CHILDREN   CCL-J 239  MATH OR SCIENCE           FMO-A 344  INDIVIUAL CHILD VERRAL
                      INDEPENDENT                          EQUIPMENT/ ACA. ACT.                 INTERACTION/ ADULT
GRADE:       - - FIRST - -     - - THIRD - -      - - FIRST - -     - - THIRD - -      - - FIRST - -     - - THIRD - -
QUINTILE:    1  2  3  4  5     1  2  3  4  5      1  2  3  4  5     1  2  3  4  5      1  2  3  4  5     1  2  3  4  5
  SITE
  201           1  1     2                 4                2  2        2  1  1              1     3     1  1  2
  204                 2  2              1  3                1  3        2  2                 1  2  1     2  2
  207                 1  3                 4             1  1  2        1     3                    4  2     1  1
  209                    4                 4             1     3              4                 1  3              4
  213              1     3              1  3             1     3        2  1  1        1  1  1     1              4

  TOTAL         1  2  3 14              2 18             3  4 13        7  4  9        1  1  3  3 12  2  3  4  3  8
 *PERCENT       5 10 15 70             10 90            15 20 65       35 20 45        5  5 15 15 60 10 15 20 15 40

VARIABLE:  FMO-A 35r  CHILD QUESTIONS TO        FMO-A 375  ADULT INSTRUCTS ONE       FMO-A 394  ALL ADULT ACKN. TO
                      ADULT                                CHILD                                CHILDREN
GRADE:       - - FIRST - -     - - THIRD - -      - - FIRST - -     - - THIRD - -      - - FIRST - -     - - THIRD - -
QUINTILE:    1  2  3  4  5     1  2  3  4  5      1  2  3  4  5     1  2  3  4  5      1  2  3  4  5     1  2  3  4  5
  SITE
  201                 1  3           1  2  1                3  1           2  2           3  1               1  2  1
  204              2  1  1                 4                4           2  1  1                 4  1     1  2
  207                 1  3           1  3                      4     1     1  2           3  1            1  2  1
  209                    4                 4                3  1           1  3        2  1  1               1  2  1
  213              1  2  1              1  3                   4              4        3  1               1  1  2

  TOTAL            3  5 12           2  6 12               10 10     1  2  5 12        5  8  3     4  1  2  6  9  2
 *PERCENT         15 25 60          10 30 60               50 50     5 10 25 60       25 40 15    20  5 10 30 45 10

VARIABLE:  FMO-A 42r  ADULT ATTEN. TO SMALL     FMO-A 421  ADULT ATTEN. TO ONE       FMC-A 423  POSITIVE BEHAVIOR,
                      GROUP                                CHILD                                ADULTS TO CHILDREN
GRADE:       - - FIRST - -     - - THIRD - -      - - FIRST - -     - - THIRD - -      - - FIRST - -     - - THIRD - -
QUINTILE:    1  2  3  4  5     1  2  3  4  5      1  2  3  4  5     1  2  3  4  5      1  2  3  4  5     1  2  3  4  5
  SITE
  201           1  2     1                 4          1  2  1              3  1           1  1  1  1        4
  204           1        3        1  1  1  1             1  1  2  1  1  1  1                    2  2              1  3
  207              1  3        2  1        1       1  1     1  1              3  1              3  1           1  1  2
  209           1  2  1           1  1     2                3  1     1        3              1  1  2                 4
 .213           2  1     1           1  1  2                2  2  1     2  1                 1  2  1        2     1  1

  TOTAL         5  6  4  5     2  3  3  2 10       1  2  3  8  6  2  2  3  8  5           1  3  9  7        6  1  3 10
 *PERCENT      25 30 20 25    10 15 15 10 50       5 10 15 40 30 10 10 15 40 25           5 15 45 35       30  5 15 50
```

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-2 (Continued)

FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES

VARIABLE: FMO-A 438 ADULT FOCUS - ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201			1	1	2			1	1	2
204				2	2		2	2		
207			1	1	2		2		1	1
209					4				1	3
213			1	1	2			1	1	2
TOTAL			3	5	12		4	4	4	8
*PERCENT			15	25	60		20	20	20	40

VARIABLE: FMO-A 444 ADULT MOVEMENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201		2	1	1				4		
204			2		2			4		
207	1	1	1	1		2	1	1		
209		2	2				1	1	1	1
213	3		1				2	1	1	
TOTAL	4	5	7	2	2	2	4	11	2	1
*PERCENT	20	25	35	10	10	10	20	55	10	5

VARIABLE: FMO-A 452 ADULT OPEN ENDED QUES. TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201	1		2		1	1	1	1	1	
204				1	3			1	1	2
207					4			2		2
209	3		1							4
213	1		1	1	1		1	1		2
TOTAL	5		4	2	9	1	2	5	2	10
*PERCENT	25		20	10	45	5	10	25	10	50

VARIABLE: FMO-A 456 ALL CHILD TASK-RELATED COMMENTS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201		2	2				2	1	1	
204			1	2	1	1	1		2	
207		2		1	1			2	1	1
209		1		1	2			1	3	
213				1	3				1	3
TOTAL		5	3	5	7	1	3	4	8	4
*PERCENT		25	15	25	35	5	15	20	40	20

VARIABLE: FMO-A 457 ALL ADULT POSITIVE CORRECTIVE FDBK.

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201			1	1	2				3	1
204				2	2		2	2		
207	2			2				2	2	
209				1	3					4
213		3	1					2	1	1
TOTAL	2	3	2	6	7		2	6	6	6
*PERCENT	10	15	10	30	35		10	30	30	30

VARIABLE: FMO-A 460 ALL CHILD POSITIVE AFFECT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201			3	1				1	1	2
204		1	3					4		
207				2	2		1	1	2	
209			1	2	1				3	1
213		2	1	1				3		1
TOTAL		3	8	6	3		1	9	6	4
*PERCENT		15	40	30	15		5	45	30	20

VARIABLE: FMO-C 516 SOCIAL INTERACTION AMONG CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201	1			3					2	2
204	1	1		2		2	2			
207			1	2	1	1	2	1		
209					4		1	2		1
213					4			1	1	1
TOTAL	2	1	1	7	9	3	5	4	3	4
*PERCENT	10	5	5	35	45	16	26	21	16	21

VARIABLE: FMO-C 574 CHILD MOVEMENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201			2		2			1	1	2
204			2	1	1			1	2	1
207		1			3		1	1	1	1
209		1	1		2	1			2	1
213			2	1	1					3
TOTAL		2	7	2	9	1	1	3	6	8
*PERCENT		10	35	10	45	5	5	16	32	42

VARIABLE: FMO-C 599 CHILD SELF INSTRUCTION. NON-ACADEMIC

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
201	1		1	1	1	1	1		2	
204	1			2	1	1	1	1		1
207				1	3				3	1
209			2		2	1		2	1	
213				3	1	1			1	1
TOTAL	2		3	7	8	4	2	3	7	3
*PERCENT	10		15	35	40	21	11	16	37	16

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-2 (Concluded)

FAR WEST LABORATORY I TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS, SITE, AND SPONSORS PAGE 2- 1

	FIRST GRADE						THIRD GRADE					
SITE	CLASSROOM				MEAN	S.D.	CLASSROOM				MEAN	S.D.
Berkeley, Calif.	72.6	79.3	75.6	71.9	74.8	3.4	82.2	70.4	79.3	71.9	75.9	5.7
Duluth, Minn.	76.3	84.4	80.7	80.0	80.4	3.3	74.1	61.5	80.0	71.1	71.7	7.7
Lebanon, N.H.	81.5	75.6	84.4	80.7	80.6	3.7	69.6	77.8	74.1	64.4	71.5	5.8
Salt Lake City, Utah	80.7	85.9	75.6	80.0	80.6	4.2	84.4	89.6	76.3	85.2	83.9	5.6
Tacoma, Wash.	78.5	71.9	78.5	71.1	75.0	4.1	79.2	84.4	80.7	72.6	79.2	5.0
Sponsor Scores (N=20):					78.3	4.4					76.4	7.2
NFT Scores (N=35):					60.3	6.3						
NFT Scores (N=36):											59.0	9.4

t = 11.28
p > .001

t = 7.18
p > .001

Table M-3

VARIABLE: PEI 24 CHILD SELECTION OF SEATING AND WORK GROUPS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305		1	3					3	1	
307			1		3				3	1
308		3					1	1	2	
309			1		3				3	1
311		2	1		1		3	1		
316					4				1	3
TOTAL		6	6		11		4	5	10	5
*PERCENT		26	26		48		17	21	42	21

PEI 25 GAMES, TOYS, PLAY EQUIPMENT PRESENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305					4				4	
307					4					4
308					3			2		2
309					4					4
311	1		1	1	1		2	1	1	
316			1	1	2		1	1		2
TOTAL	1		2	2	18		3	4	5	12
*PERCENT	4		9	9	78		13	17	21	50

CCL-A 65 GUESSING GAMES, TABLE GAMES, PUZZLES

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305			1	1	2		1		1	2
307			1	1	2				1	3
308			1		2		2			2
309				2	2		2	1		1
311			2		2				1	3
316					4					4
TOTAL			5	4	14		5	1	3	15
*PERCENT			22	17	61		21	4	13	63

VARIABLE: CCL-A 66 NUMBERS, MATH, ARITHMETIC

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305		2	1	1		1			2	1
307	1	3				2	2			
308		2		1		3	1			
309	2	2				3	1			
311	1	3				2	2			
316		3			1	4				
TOTAL	4	15	1	2	1	15	6		2	1
*PERCENT	17	65	4	9	4	63	25		8	4

CCL-A 67 READING, ALPHABET, LANGUAGE DEVELOPMENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305	2		2			2	2			
307	4					3		1		
308		1	1		1	3	1			
309	4					3		1		
311			1		3				1	3
316	3	1				2	1		1	
TOTAL	13	2	4		4	13	4	2	2	3
*PERCENT	57	9	17		17	54	17	8	8	13

CCL-A 70 SEWING, COOKING, POUNDING

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305				4					3	1
307					4				2	2
308				2	1					4
309				1	3					4
311				4					2	2
316				1	3				2	2
TOTAL				12	11				9	15
*PERCENT				52	48				38	63

VARIABLE: CCL-A 83 VARIETY OF ACTIVITIES, OVER ONE DAY

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305				2	2		2			2
307					4					4
308	1				2					4
309					4				1	3
311	2	1		1				1	1	2
316					4					4
TOTAL	3	1		3	16		2	1	2	19
*PERCENT	13	4		13	70		8	4	8	79

CCL-B 86 TEACHER WITH ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305		2			2	2		1	1	
307			1	2	1	1			2	1
308	1	1		1			1		2	1
309				3	1		1		1	2
311	1				3	2			1	1
316				2	2			1	2	1
TOTAL	2	3	1	8	9	5	2	2	9	6
*PERCENT	9	13	4	35	39	21	8	8	38	25

CCL-B 88 TEACHER WITH SMALL GROUP

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305				3	1				1	3
307				1	3					4
308					3					4
309			1		3			1		3
311	2	1		1						4
316					4					4
TOTAL	2	1	1	5	14			1	1	22
*PERCENT	9	4	4	22	61			4	4	92

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-3 (Continued)

UNIVERSITY OF ARIZONA :

FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES

PAGE 3- 2

VARIABLE: CCL-B 94 AIDE WITH SMALL GROUP

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305				2	2				1	3
307				1	3					4
308				2	1					4
309				1	3					4
311				1	3					4
316					4					4
TOTAL				7	16				1	23
*PERCENT				30	70				4	96

CCL-B 114 ONE CHILD INDEPENDENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305		1	1		2			2	1	1
307				1	3				1	3
308					3		1		2	1
309				2	2				1	3
311	2	1	1				1	2	1	
316				2	2					4
TOTAL	2	2	2	5	12		2	4	6	12
*PERCENT	9	9	9	22	52		8	17	25	50

FMO-A 344 INDIVIUAL CHILD VERBAL INTERACTION/ ADULT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305		1	1		2		1	1	1	1
307				1	3				2	2
308			1		2	1		1		2
309		1		1	2			2	2	
311	2	2					1	2	1	
316		2		1	1				1	3
TOTAL	2	6	2	3	10	1	2	6	7	8
*PERCENT	9	26	9	13	43	4	8	25	29	33

VARIABLE: FMO-A 350 CHILD QUESTIONS TO ADULT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305	3	1				2		1	1	
307				1	3			2		2
308				3				1	2	1
309				2	2				3	1
311		1	3					1	1	2
316			1		3					4
TOTAL	3	2	4	6	8	2		5	7	10
*PERCENT	13	9	17	26	35	8		21	29	42

FMO-A 398 ALL ADULT PRAISE TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305	3	1				2	2			
307	1	2		1			1	1	2	
308	1		1		1	1	2			1
309			1	1	2			1	1	2
311		2	1		1			3	1	
316	1		1	1	1					4
TOTAL	6	5	4	3	5	3	5	5	4	7
*PERCENT	26	22	17	13	22	13	21	21	17	29

FMO-A 421 ADULT ATTEN. TO ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305	1			2	1	4				
307		2	1		1	1	1		1	1
308					3		1	1	2	
309	1	3				2	2			
311				2	2	3			1	
316		1			3	2		2		
TOTAL	2	6	1	4	10	12	4	3	4	1
*PERCENT	9	26	4	17	43	50	17	13	17	4

VARIABLE: FMO-A 423 POSITIVE BEHAVIOR, ADULTS TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305		2	1	1		1	1		2	
307	1	2		1		1			2	1
308			1	1	1			1	1	2
309		1	1	2					2	2
311	2	2					2	2		
316			1	2	1		1	1	2	
TOTAL	3	7	4	7	2	2	4	4	9	5
*PERCENT	13	30	17	30	9	8	17	17	38	21

FMO-A 452 ADULT OPEN ENDED QUES. TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305					4		1			3
307	1	1		2				2	2	
308				1	2				1	3
309					4			1	2	1
311		3	1				1	3		
316				1	3		1		1	2
TOTAL	1	4	1	4	13		3	6	6	9
*PERCENT	4	17	4	17	57		13	25	25	38

FMO-A 454 CHILD EXTENDED RESP. TO QUES.

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305					4				2	2
307				1	3		1	1		2
308			1		2			1	1	2
309				4			2	2		
311	4					3	1			
316			1	1	2		1	2	1	
TOTAL	4		2	6	11	3	5	6	4	6
*PERCENT	17		9	26	48	13	21	25	17	25

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-3 (Concluded)

UNIVERSITY OF ARIZONA : FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES PAGE 3- 3

VARIABLE: FMO-A 456 ALL CHILD TASK-RELATED COMMENTS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305				3	1	3		1		
307					4					4
308			1		2		1		2	1
309	1	3					2	1	1	
311	4					3	1			
316				2	2			1	3	
TOTAL	5	3	1	5	9	6	4	3	6	5
*PERCENT	22	13	4	22	39	25	17	13	25	21

FMO-A 463 ALL CHILD POSITIVE AFFECT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305		2	1	1		2			2	
307	2		2			1			2	1
308			1	1	1			1	2	1
309		2	1		1					4
311	3	1				1	2	1		
316			2	2				2	1	1
TOTAL	5	5	7	4	2	4	2	4	7	7
*PERCENT	22	22	30	17	9	17	8	17	29	29

FMO-C 599 CHILD SELF INSTRUCTION. NON-ACADEMIC

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
305	1		1		2	3		1		
307					4	1			1	2
308		1		1	1		1		1	2
309					4				2	2
311					3					4
316			1	1	2	1	1	1	1	
TOTAL	1	1	2	2	16	5	2	2	5	10
*PERCENT	5	5	9	9	73	21	8	8	21	42

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

UNIVERSITY OF ARIZONA : TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS, SITE, AND SPONSORS PAGE 3- 1

SITE	- - - - - - FIRST GRADE - - - - - -						- - - - - - THIRD GRADE - - - - - -					
	- - - - CLASSROOM - - - -				MEAN	S.D.	- - - - CLASSROOM - - - -				MEAN	S.D.
Des Moines, Iowa	79.0	62.9	69.5	71.4	70.7	6.7	65.7	52.4	53.3	75.2	61.7	10.9
Fort Worth, Texas	85.7	78.1	70.5	75.2	77.4	6.4	66.7	80.0	82.9	84.8	78.6	8.2
LaFayette, Geo.	79.0	71.4	87.6		79.4	8.1	68.6	71.4	73.3	87.6	75.2	8.5
Lakewood, N.J.	78.1	74.3	76.2	79.0	76.9	2.1	76.2	78.1	76.2	73.3	76.0	2.0
Newark, N.J.	57.1	54.0	56.2	54.3	55.4	1.5	61.9	63.8	67.6	63.8	64.3	2.4
Lincoln, Nebr.	89.5	88.6	74.3	81.0	83.3	7.1	77.1	75.2	78.1	81.9	78.1	2.8

	MEAN	S.D.
Sponsor Scores (N=23)	73.6	10.7
NFT Scores (N=35)	61.8	7.0
Sponsor Scores (N=24)	72.3	9.1
NFT Scores (N=36)	60.7	9.3

First grade: t = 4.99, p > .001

Third grade: t = 4.77, p > .001

Table M-4

BANK STREET :

FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES

VARIABLE: PEI 24 CHILD SELECTION OF SEATING AND WORK GROUPS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502		2	1						2	1
504					4		3		1	
506					4				4	
508					4		1	1	2	
510		4							4	
TOTAL		6	1		12		4	1	13	1
*PERCENT		32	5		63		21	5	68	5

PEI 25 GAMES, TOYS, PLAY EQUIPMENT PRESENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502					3					3
504				1	3				2	2
506				2	2		2	2		
508				1	3				1	3
510					4				2	2
TOTAL				4	15		2	2	5	10
*PERCENT				21	79		11	11	26	53

CCL-A 66 NUMBERS, MATH, ARITHMETIC

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502	1	1	1			1	2			
504	4							3	1	
506	2	1		1		2			1	1
508		1	1	2		1	2	1		
510				1	3		2		1	1
TOTAL	7	3	2	4	3	4	6	4	3	2
*PERCENT	37	16	11	21	16	21	32	21	16	11

VARIABLE: CCL-A 67 READING, ALPHABET, LANGUAGE DEVELOPMENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502	3					3				
504	2	2				3	1			
506	1	1	1	1		1		1	1	1
508	1	1	2			4				
510		1	2	1				2	1	1
TOTAL	7	5	5	2		11	1	3	2	2
*PERCENT	37	26	26	11		58	5	16	11	11

CCL-A 74 PRACTICAL SKILLS ACQUISITION

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502				1	2				2	1
504				4					4	
506				3	1				2	2
508				2	2				3	1
510				3	1				3	1
TOTAL				13	6				14	5
*PERCENT				68	32				74	26

CCL-A 83 VARIETY OF ACTIVITIES, OVER ONE DAY

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502					3					3
504			1		3		2			2
506				2	2				1	3
508			1		3					4
510				3	1		1	1	2	
TOTAL			2	5	12		3	1	3	12
*PERCENT			11	26	63		16	5	16	63

VARIABLE: CCL-B 86 TEACHER WITH ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502			1	1	1				1	2
504		1		1	2			1	3	
506	1		2		1			1	2	1
508	1	2		1		1	1	1	1	
510				2	2	1		1	1	1
TOTAL	2	3	3	5	6	2	1	4	8	4
*PERCENT	11	16	16	26	32	11	5	21	42	21

CCL-B 87 TEACHER WITH TWO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502		1			2				1	2
504				3	1			1	1	2
506		1			3				3	1
508				2	2			2	1	1
510		1		1	2			1	3	
TOTAL		3		6	10			4	9	6
*PERCENT		16		32	53			21	47	32

CCL-B 88 TEACHER WITH SMALL GROUP

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502	1		1	1				1		2
504				3	1					4
506				1	3				1	3
508				2	2		1			3
510				2	2		1			3
TOTAL	1		1	9	8		2	1	1	15
*PERCENT	5		5	47	42		11	5	5	79

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-4 (Continued)

BANK STREET :   FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES   PAGE 5- 2

VARIABLE: CCL-B 92 AIDE WITH ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502			1		2				3	
504			1		3		2		2	
506				2	2		1		3	
508				2	2		1		3	
510				2	2		1	2	1	
TOTAL			2	6	11		5	2	12	
*PERCENT			11	32	58		26	11	63	

CCL-B 114 ONE CHILD INDEPENDENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5		2	3	4	5
SITE										
502					3					3
504					4				2	2
506			1	1	2			1	1	2
508			1	1	2				2	2
510				2	2	1		1	2	
TOTAL			2	4	13	1		2	7	9
*PERCENT			11	21	68	5		11	37	47

CCL-B 116 SMALL GROUP OF CHILDREN INDEPENDENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502			1	1	1			1	2	
504					4				1	3
506				2	2				1	3
508			1	1	2	1		1	1	1
510			2	1	1	1			1	2
TOTAL			4	5	10	2		2	6	9
*PERCENT			21	26	53	11		11	32	47

VARIABLE: CCL-J 239 MATH OR SCIENCE EQUIPMENT/ ACA. ACT.

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502		3								3
504		1		2	1			3		1
506				1	3			2	1	1
508		1		3				2		2
510		1			3			2		2
TOTAL		6		6	7			9	1	9
*PERCENT		32		32	37			47	5	47

FMO-A 343 CHILD TO ADULT-ALL VERBAL EXCEPT RESP.

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502			1	2					1	2
504			1	2	1	2	2			
506	3			1		3	1			
508			3		1		1	2	1	
510		1		2	1			3	1	
TOTAL	3	1	5	7	3	5	4	5	3	2
*PERCENT	16	5	26	37	16	26	21	26	16	11

FMO-A 344 INDIVIUAL CHILD VERBAL INTERACTION/ ADULT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502	1	1	1					2	1	
504		1		1	2	1	2	1		
506			1		3			2	1	1
508					4	1	2	1		
510					4		1	2		1
TOTAL	1	2	2	1	13	2	5	8	2	2
*PERCENT	5	11	11	5	68	11	26	42	11	11

VARIABLE: FMO-A 357 CHILD QUESTIONS TO ADULT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502				1	2				3	
504			1	2	1	4				
506	3	1				3	1			
508			2	1	1				4	
510			1	1	2	1	1	2		
TOTAL	3	1	4	5	6	8	2	2	7	
*PERCENT	16	5	21	26	32	42	11	11	37	

FMO-A 372 CHILD PRESENTING INFORMATION TO GROUP

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502			3					2		1
504			4					4		
506			3	1				3		1
508				1	3					4
510			4					1	1	2
TOTAL			14	2	3			11	1	8
*PERCENT			74	11	16			53	5	42

FMO-A 394 ALL ADULT ACKN. TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502	1		2			1		2		
504		2	1		1					4
506				1	3	1		2	1	
508	1	2	1			3				1
510					4		1		1	2
TOTAL	2	4	4	1	8	5	1	4	2	7
*PERCENT	11	21	21	5	42	26	5	21	11	37

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-4 (Continued)

BANK STREET : FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES PAGE 5- 7

VARIABLE: FMO-A 421 ADULT ATTEN. TO ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502				1	2			3		
504			2	1	1			1		3
506	1	2			1	3	1			
508			2		2	4				
510			2		2	1			1	2
TOTAL	1	2	6	2	8	8	1	4	1	5
*PERCENT	5	11	32	11	42	42	5	21	5	26

FMO-A 423 POSITIVE BEHAVIOR, ADULTS TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502				2	1			1		2
504		2	1	1				1	2	1
506				3	1			2		2
508	1		1	2		1	2			1
510					4			3	1	
TOTAL	1	2	2	8	6	1	2	7	3	6
*PERCENT	5	11	11	42	32	5	11	37	16	32

FMO-A 438 ADULT FOCUS - ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502	1			1	1			2		1
504			1	2	1			1	1	2
506		1			3			1	2	1
508					4	3	1			
510					4	1			1	2
TOTAL	1	1	1	3	13	4	1	4	4	6
*PERCENT	5	5	5	16	68	21	5	21	21	32

VARIABLE: FMO-A 452 ADULT OPEN ENDED QUES. TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502				1	2		1	2		
504	1			3				2		2
506			1	1	2			1	1	2
508	1			1	2		1	2	1	
510	2			2			2		1	1
TOTAL	4		1	8	6		4	7	3	5
*PERCENT	21		5	42	32		21	37	16	26

FMO-A 454 CHILD EXTENDED RESP. TO QUES.

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502		2	1					2		1
504			3		1	2	1	1		
506	2	2					3	1		
508				2	2			3	1	
510		3	1					1		3
TOTAL	2	7	5	2	3	2	4	8	1	4
*PERCENT	11	37	26	11	16	11	21	42	5	21

FMO-C 510 CHILD SELF-INSTRUCTION, OBJECTS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502				1	2				2	1
504		1		2	1			2	1	1
506				1	3			1	3	
508					3				2	2
510		1		2	1				1	2
TOTAL		2		6	10			3	9	6
*PERCENT		11		33	56			17	50	33

VARIABLE: FMO-C 513 CHILD TASK PERSISTENCE

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502	1	1		1		1	2			
504	1	2	1				1	1		2
506	1		2		1	2			2	
508	1	2				4				
510		2	1	1					1	2
TOTAL	4	7	4	2	1	7	3	1	3	4
*PERCENT	22	39	22	11	6	39	17	6	17	22

FMO-C 515 SMALL GROUP USING OBJECTS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502				3					3	
504				4					4	
506				4					4	
508				3					4	
510				4					3	
TOTAL				18					18	
*PERCENT				100					100	

FMO-C 516 SOCIAL INTERACTION AMONG CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
502	2	1				1	2			
504	3		1			4				
506			1	3				1		3
508				2	1				1	3
510	3	1					3			
TOTAL	8	2	2	5	1	5	5	1	1	6
*PERCENT	44	11	11	28	6	28	28	6	6	33

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-4 (Concluded)

BANK STREET : TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS, SITE, AND SPONSORS PAGE 5- 1

	FIRST GRADE						THIRD GRADE					
	CLASSROOM				MEAN	S.D.	CLASSROOM				MEAN	S.D.
SITE												
Brattleboro, Vt.	64.4	74.1	68.9		69.1	4.8	75.6	74.8	71.1		73.8	2.4
Fall River, Mass.	80.7	75.6	71.1	63.0	72.6	7.5	61.5	68.9	68.9	71.1	67.6	4.2
New York City	78.5	74.8	77.0	67.4	74.4	4.9	62.2	68.9	77.8	69.6	69.6	6.4
Philadelphia	77.8	82.6	78.5	77.0	79.0	2.5	63.0	65.2	60.0	70.4	64.6	4.4
Tuskegee, Ala.	80.0	78.5	75.6	76.3	77.6	2.0	70.4	81.5	77.0	63.0	73.0	8.1
Sponsor Scores (N=19)					74.8	5.5					69.5	6.0
NFT Scores (N=35)					62.7	6.2						
NFT Scores (N=36)											62.4	8.6

First grade:
t = 7.12
p > .001

Third grade:
t = 3.20
p > .001

Table M-5

```
UNIVERSITY OF OREGON I3           FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES          PAGE  7- 1

VARIABLE:  CCL-A  66  NUMBERS, MATH,              CCL-A  67  READING, ALPHABET,           CCL-B  88  TEACHER WITH SMALL
                      ARITHMETIC                             LANGUAGE DEVELOPMENT                    GROUP
GRADE:       - - FIRST - -       - - THIRD - -      - - FIRST - -       - - THIRD - -       - - FIRST - -       - - THIRD - -
QUINTILE:    1  2  3  4  5       1  2  3  4  5      1  2  3  4  5       1  2  3  4  5       1  2  3  4  5       1  2  3  4  5
  SITE
   703                   4             1     3         1  1  2             1  1  1  1       1           3          1     1  2
   707                   3          1  2                     1  2       1        2                   1  2       1     1     1
   708                2  2             2  2               4                         4                   4       2        1  1
   711                1  3                   4         1        3                1  3                   4                   4
   719          2        2          2  1     1            4                         4                   4                   4

 TOTAL          2     3 14          3  6  2  8         2  9  3  5       1  1  1  4 12       1        1 17       3  1  1  2 12
*PERCENT       11    16 74         16 32 11 42        11 47 16 26       5  5  5 21 63       5        5 89      16  5  5 11 63

VARIABLE:  CCL-B  94  AIDE WITH SMALL GROUP       CCL-J 24ñ  TEXTS, WOOKROOKS/            FMO-A 344  INDIVIUAL CHILD VERBAL
                                                             ACADEMIC ACTIVITY                       INTERACTION/ ADULT
GRADE:       - - FIRST - -       - - THIRD - -      - - FIRST - -       - - THIRD - -       - - FIRST - -       - - THIRD - -
GUINTILE:    1  2  3  4  5       1  2  3  4  5      1  2  3  4  5       1  2  3  4  5       1  2  3  4  5       1  2  3  4  5
  SITE
   703             1  1  2                   4               2  2       3           1       4                   4
   707                1  2                2  1               1  2          1     1  1          3                1  1     1
   708                   4             1  2  1         1  1  2             1  1  2          3  1                1     1  2
   711                   4                   4            2  2                      4       4                   3     1
   719                1  3                1  3               1  3                1  3       4                   3     1

 TOTAL             1  3 15             1  5 13         1  3  8  7       3  2  1  4  9      15  4               12  1  3  3
*PERCENT           5 16 79             5 26 68         5 16 42 37      16 11  5 21 47      79 21               63  5 16 16

VARIABLE:  FMO-A 363  GROUP RESP. TO ADULT        FMO-A 376  ADULT INSTRUCTS GROUP        FMO-A 394  ALL ADULT ACKN. TO
                     ACA. REW. OR DIR. QUES.                                                         CHILDREN
GRADE:       - - FIRST - -       - - THIRD - -      - - FIRST - -       - - THIRD - -       - - FIRST - -       - - THIRD - -
QUINTILE:    1  2  3  4  5       1  2  3  4  5      1  2  3  4  5       1  2  3  4  5       1  2  3  4  5       1  2  3  4  5
  SITE
   703                   4                   4         4                            4                2  2                   4
   707                   3                   3                  3          3                            3                1  2
   708             1     3                   4      4                      2  1     1          2  2             3  1
   711                   4                   4      2     2                      2  2          1  1     2       2        1  1
   719                   4                   4         4                1  3                2  1  1             1     1  2

 TOTAL             1    18                  19      6  8  2     3       1  8  1  2  7       2  4  4  2  7       6  1  1  4  7
*PERCENT           5    95                 100     32 42 11    16       5 42  5 11 37      11 21 21 11 37      32  5  5 21 37


 * PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE
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Table M-5 (Continued)

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 UNIVERSITY OF OREGON :               FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES           PAGE  7- 2

VARIABLE:  FMO-A 398  ALL ADULT PRAISE TO           FMO-A 412  ADULT FDBK. TO CHILD           FMO-A 420  ADULT ATTEN. TO SMALL
                      CHILDREN                       RESP. TO ADULT ACA. COMM., QUES.                    GROUP
GRADE:     - - FIRST - -     - - THIRD - -          - - FIRST - -     - - THIRD - -           - - FIRST - -     - - THIRD - -
QUINTILE:  1  2  3  4  5     1  2  3  4  5          1  2  3  4  5     1  2  3  4  5           1  2  3  4  5     1  2  3  4  5
  SITE
   703     2  1  1              2     2                      1  3              1  3           1  1  1     1           1     3
   707        2     1              1  1  1                      3           1  1  1                       3           3
   708                 4                 4                      4              1  3                       4     2           2
   711                 4        1     1  2                      4        1     1  2                       4                 4
   719           1  2  1              1  3          1  1     2                    4                 1     3                 4

 TOTAL     2  3  2  3  9        3  1  5 10          1  1     3 14        1  1  4 13           1  1  2    15     2     4    13
*PERCENT  11 16 11 16 47       16  5 26 53          5  5    16 74        5  5 21 68           5  5 11    79    11    21    68

VARIABLE:  FMO-A 435  TOTAL ACADEMIC VERBAL         FMO-A 442  ADULT FOCUS - SMALL            FMO-A 451  ADULT ACA., COMM., REQ.
                      INTERACTIONS                             GROUP                                     .DIR. TO CHILDREN
GRADE:     - - FIRST - -     - - THIRD - -          - - FIRST - -     - - THIRD - -           - - FIRST - -     - - THIRD - -
QUINTILE:  1  2  3  4  5     1  2  3  4  5          1  2  3  4  5     1  2  3  4  5           1  2  3  4  5     1  2  3  4  5
  SITE
   703                 2  2           2     2          1        1  2              1  3                       4        1  1  2
   707                 1  2        1  1  1                         3        1  1     1                       3                 3
   708        4                          4                      4     1           3              1     3                    1  3
   711                    4              4                      4                 4                       4                 4
   719              1  1  2     1  1  1  1                         4                 4                       4           1     3

 TOTAL        4  1  4 10     1  2  4  2 10          1        1 17     1  1  1  1 15              1     3 15        1  2  3 13
*PERCENT     21  5 21 53     5 11 21 11 53          5        5 89     5  5  5  5 79              5    16 79        5 11 16 68

VARIABLE:  FMO-A 457  ALL ADULT POSITIVE            FMO-C 509  CHILD SELF INSTRUCTION,
                      CORRECTIVE FDBK.                         ACADEMIC
GRADE:     - - FIRST - -     - - THIRD - -          - - FIRST - -     - - THIRD - -
QUINTILE:  1  2  3  4  5     1  2  3  4  5          1  2  3  4  5     1  2  3  4  5
  SITE
   703     2     2              4                                     1        2  1
   707              1  1  1        2        1                            2     1
   708     1  2  1              1  1     2                                  1  3
   711        1     1  2        1  3                                  3  1
   719        2     2        4                                        1        1  1

 TOTAL     3  5  4  4  3     4  8  4     3                            5  3  1  7  2
*PERCENT  16 26 21 21 16    21 42 21    16                           28 17  6 39 11

    * PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE
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Table M-5 (Concluded)

UNIVERSITY OF OREGON I

TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS, SITE, AND SPONSORS

SITE	FIRST GRADE CLASSROOM				MEAN	S.D.	THIRD GRADE CLASSROOM				MEAN	S.D.
East St. Louis, Ill.	76.2	62.5	76.2	75.0	72.5	6.7	76.5	62.4	78.8	87.1	76.2	10.3
New York City	88.7	90.0	91.2		90.0	1.3	68.2	81.2	57.6		69.0	11.8
Racine, Wisc.	72.5	72.5	71.2	71.2	71.9	.7	71.8	62.4	84.7	85.9	76.2	11.2
Tupelo, Miss.	80.0	86.2	87.5	87.5	85.3	3.6	87.1	80.0	90.6	74.1	82.9	7.3
Providence, R.I.	72.5	77.5	72.5	73.7	74.1	2.4	75.0	82.4	78.8	69.4	76.4	5.5
Sponsor Scores (N=19)					78.2	8.1					76.5	9.3
NFT Scores (N=35) / NFT Scores (N=36)					61.0	10.7					60.4	10.5

First grade: t = 6.11
p > .001

Third grade: t = 5.62
p > .001

Table M-6

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UNIVERSITY OF KANSAS :            FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES          PAGE  A- 1

VARIABLE: PEI 39  GENERAL EQUIPMENT,            CCL-A  65  GUESSING GAMES, TABLE      CCL-A  66  NUMBFRS, MATH,
                  MATERIALS PRESENT                        GAMES, PUZZLES                        ARITHMETIC
GRADE:     - - FIRST - -     - - THIRD - -       - - FIRST - -     - - THIRD - -       - - FIRST - -     - - THIRD - -
QUINTILE:   1  2  3  4  5     1  2  3  4  5       1  2  3  4  5     1  2  3  4  5       1  2  3  4  5     1  2  3  4  5
  SITE
   801      1     1           1  1                      2              1     1                1  1           2
   803                  4           1  3                      4           1     3             2  1  1        1  2     1
   804            1  1  2     1     1  1                   2  2        2     1                   3  1              2  1
   806         2  2                 2  1  1                   4              3  1             2  1  1     2  2
   807      2     1  1                 1  3             2  1  1        3     1                   2  2        1     3

  TOTAL     3  2  5  2  6     2  1  4  6  4             4  3 11        6  1  6  4             5  8  5     2  6  2  5  2
*PERCENT   17 11 28 11 33    12  6 24 35 24            22 17 61       35  6 35 24            28 44 28    12 35 12 29 12

VARIABLE: CCL-A  67  READING, ALPHABET,         CCL-B  88  TEACHER WITH SMALL         CCL-B  94  AIDE WITH SMALL GROUP
                     LANGUAGE DEVELOPMENT                  GROUP
GRADE:     - - FIRST - -     - - THIRD - -       - - FIRST - -     - - THIRD - -       - - FIRST - -     - - THIRD - -
QUINTILE:   1  2  3  4  5     1  2  3  4  5       1  2  3  4  5     1  2  3  4  5       1  2  3  4  5     1  2  3  4  5
  SITE
   801         1        1              1  1                1  1                 2                   2                 2
   803      1        1  2           1  1  2                3  1           1  1  2                3  1              1  3
   804                  4           1  2                      4        1        2                   4                 3
   806         1  1  1  1        1     1  2                1  3                 4                   4                 4
   807                  4                 4                   4                 4                   4                 4

  TOTAL     1  2  1  2 12        1  2  5  9                5 13        1  1  1 14                3 15              1 16
*PERCENT    6 11  6 11 67        6 12 29 53               28 72        6  6  6 82               17 83              6 94

VARIABLE: CCL-J 248  TEXTS, WOOKBOOKS/          FMO-A 344  INDIVIUAL CHILD VERBAL     FMO-A 394  ALL ADULT ACKN. TO
                     ACADEMIC ACTIVITY                     INTERACTION/ ADULT                    CHILDREN
GRADE:     - - FIRST - -     - - THIRD - -       - - FIRST - -     - - THIRD - -       - - FIRST - -     - - THIRD - -
QUINTILE:   1  2  3  4  5     1  2  3  4  5       1  2  3  4  5     1  2  3  4  5       1  2  3  4  5     1  2  3  4  5
  SITE
   801               1  1              1  1                   2                 2          2                    1     1
   803         1  1  1  1              2  2             2  1  1        1  2  1             3  1           2  1  1
   804                  4                 3                   4           1     2             2     2           1     2
   806            1  3              3  1                2  1  1           1     3       1  3                    1     3
   807                  4                 4                   4           1  1  2          1  1  1  1                 4

  TOTAL        1  2  5 10           3  4 10             4  2 12        1  5  2  9       1  9  4  1  3     2  1  4    10
*PERCENT       6 11 28 56          18 24 59            22 11 67        6 29 12 53       6 50 22  6 17    12  6 24    59


 * PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE
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Table M-6 (Continued)

UNIVERSITY OF KANSAS : FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES PAGE A- ?

VARIABLE: FMO-A 398 ALL ADULT PRAISE TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
801					2					2
803					4					4
804					4			1	1	1
806					4					4
807					4					4
TOTAL					18			1	1	15
*PERCENT					100			6	6	88

FMO-A 412 ADULT FDBK. TO CHILD RESP. TO ADULT ACA. COMM., QUES.

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
801					2				1	1
803				1	3				2	2
804					4		1	1		1
806					4					4
807					4					4
TOTAL				1	17		1	1	3	12
*PERCENT				6	94		6	6	18	71

FMO-A 421 ADULT ATTEN. TO ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
801		1	1				2			
803			2		2	1			2	1
804			1	1	2				2	1
806		2		1	1				2	2
807	1	2	1			2		2		
TOTAL	1	5	5	2	5	3	2	2	6	4
*PERCENT	6	28	28	11	28	18	12	12	35	24

VARIABLE: FMO-A 438 ADULT FOCUS - ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
801				1	1					2
803				2	2		1		1	2
804					4					3
806		2		1	1					4
807					4					4
TOTAL		2		4	12		1		1	15
*PERCENT		11		22	67		6		6	88

FMO-A 451 ADULT ACA., COMM., REQ. ,DIR. TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
801			1	1				1		1
803				1	3			2	1	1
804				2	2		2	1		
806			2		2					4
807					4				1	3
TOTAL			3	4	11		2	4	2	9
*PERCENT			17	22	61		12	24	12	53

FMO-A 457 ALL ADULT POSITIVE CORRECTIVE FDBK.

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
801				2				1	1	
803			1	2	1			2	1	1
804					4					3
806		2	2							4
807					4			2		2
TOTAL		2	3	4	9			5	2	10
*PERCENT		11	17	22	50			29	12	59

VARIABLE: FMO-A 469 ALL ADULT REINFORCEMENT WITH TOKENS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
801					2				2	
803					4					4
804					4				3	
806					4				4	
807					4				1	3
TOTAL					18				10	7
*PERCENT					100				59	41

FMO-C 513 CHILD TASK PERSISTENCE

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
801										
803				1	3				3	1
804		3	1						1	2
806		1	2	1				1	1	2
807			1		3				2	2
TOTAL		4	4	2	6			1	7	7
*PERCENT		25	25	13	38			7	47	47

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-6 (Concluded)

UNIVERSITY OF KANSAS I TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS, SITE, AND SPONSORS

SITE	FIRST GRADE CLASSROOM				MEAN	S.D.	THIRD GRADE CLASSROOM				MEAN	S.D.
New York City	75.0	81.3			78.1	4.4	71.2	85.0			78.1	9.7
Philadelphia	78.8	90.6	82.4	88.2	85.0	5.4	76.5	82.4	75.3	84.7	79.7	4.5
Portageville, Mo.	96.5	91.8	90.6	88.2	91.8	3.5	89.4	74.1	78.8		80.8	7.8
Kansas City, Mo.	82.4	74.1	83.5	64.7	76.2	8.7	88.2	88.2	84.7	84.7	86.5	2.0
Louisville, Ken.	85.9	90.6	92.9	85.9	88.8	3.5	88.2	91.8	87.1	85.9	88.2	2.5
Sponsor Scores (N=18)					84.6	7.9						
Sponsor Scores (N=17)											83.3	6.0
NFT Scores (N=35)					62.4	8.5						
NFT Scores (N=36)											61.3	9.3

First grade: $t = 9.22$, $p > .001$

Third grade: $t = 8.89$, $p > .001$

Table M-7

HIGH / SCOPE : FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES PAGE 9- 1

VARIABLE: PEI 24 CHILD SELECTION OF SEATING AND WORK GROUPS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901		3	1							4
902					4					4
903		3					4			
906					3				1	2
907			1		3			2	2	
TOTAL		6	2		10		4	2	3	10
*PERCENT		33	11		56		21	11	16	53

VARIABLE: PEI 25 GAMES, TOYS, PLAY EQUIPMENT PRESENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901	1			1	2	1	3			
902					4			2	1	1
903		1	1	1		3		1		
906					3					3
907					4					4
TOTAL	1	1	1	2	13	4	3	3	1	8
*PERCENT	6	6	6	11	72	21	16	16	5	42

VARIABLE: CCL-A 65 GUESSING GAMES, TABLE GAMES, PUZZLES

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901				1	3		2		1	1
902				2	2				2	2
903				1	2		1		1	2
906					3				2	1
907			2	1	1				2	2
TOTAL			2	5	11		3		8	8
*PERCENT			11	28	61		16		42	42

VARIABLE: CCL-A 66 NUMBERS, MATH, ARITHMETIC

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901			1	1	2	1	3			
902	1	2		1		3				1
903		2			1	2		1	1	
906	2				1	3				
907		1	1	1	1	2				2
TOTAL	3	5	2	3	5	11	3	1	1	3
*PERCENT	17	28	11	17	28	58	16	5	5	16

VARIABLE: CCL-A 67 READING, ALPHABET, LANGUAGE DEVELOPMENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901		3			1			1	1	2
902	3	1				3				1
903	2		1				2	1		1
906	2				1	2	1			
907	2	1			1		2			2
TOTAL	9	5	1		3	5	5	2	1	6
*PERCENT	50	28	6		17	26	26	11	5	32

VARIABLE: CCL-A 70 SEWING, COOKING, POUNDING

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901				4					4	
902				3	1				3	1
903				1	2				2	2
906				2	1					3
907					4				1	3
TOTAL				10	8				10	9
*PERCENT				56	44				53	47

VARIABLE: CCL-A 71 BLOCKS, TRUCKS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901			1		3			3		1
902				1	3			1	2	1
903					3			3		1
906			3						2	1
907					4				1	3
TOTAL			4	1	13			7	5	7
*PERCENT			22	6	72			37	26	37

VARIABLE: CCL-A 83 VARIETY OF ACTIVITIES, OVER ONE DAY

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901		1		1	2		1	1	1	1
902			1		3					4
903				1	2	1	1			2
906				2	1					3
907				1	3					4
TOTAL		1	1	5	11	1	2	1	1	14
*PERCENT		6	6	28	61	5	11	5	5	74

VARIABLE: CCL-B 86 TEACHER WITH ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901		1	1	1	1	2		2		
902		1		2	1				3	1
903			1		2	2		1		1
906	1		1		1				2	1
907			1	2	1	1		2		1
TOTAL	1	2	4	5	6	5		5	5	4
*PERCENT	6	11	22	28	33	26		26	26	21

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-7 (Continued)

FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES

VARIABLE: CCL-B 88 TEACHER WITH SMALL GROUP

GRADE:	- - FIRST				- -	- - THIRD				- -
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901					4					4
902			1	1	2				1	3
903				1	2					4
906					3					3
907					4				1	3
TOTAL			1	2	15				2	17
*PERCENT			6	11	83				11	89

CCL-B 94 AIDE WITH SMALL GROUP

GRADE:	- - FIRST				- -	- - THIRD				- -
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901					4					4
902				4					2	2
903				1	2					4
906				1	2				1	2
907					4					4
TOTAL				6	12				3	16
*PERCENT				33	67				16	84

CCL-J 239 MATH OR SCIENCE EQUIPMENT/ ACA. ACT.

GRADE:	- - FIRST				- -	- - THIRD				- -
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901					4			1		3
902			1		3					4
903		1			2			1		3
906					3					3
907		1	1		2				2	2
TOTAL		2	2		14			2	2	15
*PERCENT		11	11		78			11	11	79

VARIABLE: FMO-A 344 INDIVIUAL CHILD VERBAL INTERACTION/ ADULT

GRADE:	- - FIRST				- -	- - THIRD				- -
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901	3	1							3	1
902			1	2	1			1		3
903					3					4
906					3				1	2
907		1	1		2				3	1
TOTAL	3	2	2	2	9			1	7	11
*PERCENT	17	11	11	11	50			5	37	58

FMO-A 35Å CHILD QUESTIONS TO ADULT

GRADE:	- - FIRST				- -	- - THIRD				- -
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901	1	1	2			1	1		1	1
902		1		3					4	
903					3		1	1	1	1
906					3					3
907		1	1	2		1	1	1		1
TOTAL	1	3	3	5	6	2	3	2	6	6
*PERCENT	6	17	17	28	33	11	16	11	32	32

FMO-A 372 CHILD PRESENTING INFORMATION TO GROUP

GRADE:	- - FIRST				- -	- - THIRD				- -
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901				2	2			3		1
902			2		2			1	2	1
903			3					4		
906			3					2	1	
907			4					2	2	
TOTAL			12	2	4			12	5	2
*PERCENT			67	11	22			63	26	11

VARIABLE: FMO-A 39ř ADULT TASK-RELATED COMMENTS TO CHILDREN

GRADE:	- - FIRST				- -	- - THIRD				- -
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901	1	2	1					2	2	
902				3	1				1	3
903	3					2	2			
906			1	1	1				2	1
907		2	1		1	4				
TOTAL	4	4	3	4	3	6	2	2	5	4
*PERCENT	22	22	17	22	17	32	11	11	26	21

FMO-A 394 ALL ADULT ACKN. TO CHILDREN

GRADE:	- - FIRST				- -	- - THIRD				- -
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901		2	1	1					2	2
902		1	1	2				1	2	1
903	3					4				
906				1	2			1		2
907				1	3					4
TOTAL	3	3	2	5	5	4		2	4	9
*PERCENT	17	17	11	28	28	21		11	21	47

FMO-A 420 ADULT ATTEN. TO SMALL GROUP

GRADE:	- - FIRST				- -	- - THIRD				- -
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901					4				1	3
902			2		2				2	2
903	3					1		1	1	1
906		1		1	1			1	1	1
907					4					4
TOTAL	3	1	2	1	11	1		2	5	11
*PERCENT	17	6	11	6	61	5		11	26	58

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-7 (Continued)

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HIGH / SCOPE :                      FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES          PAGE  9- 3

VARIABLE:  FMO-A 421  ADULT ATTEN. TO ONE         FMO-A 438  ADULT FOCUS - ONE CHILD     FMO-A 440  ADULT FOCUS - SMALL
                      CHILD                                                                         GROUP
GRADE:      - - FIRST - -     - - THIRD - -        - - FIRST - -     - - THIRD - -        - - FIRST - -     - - THIRD - -
QUINTILE:    1  2  3  4  5     1  2  3  4  5        1  2  3  4  5     1  2  3  4  5        1  2  3  4  5     1  2  3  4  5
  SITE
   901          2        2        2     1  1        3           1               1  3                 2  2               2  2
   902          3        1        1  1  2              1     2  1            1     3                 4                  4
   903       2  1              3  1                          2  1               4                 1     2            2  1  1
   906                2  1              2  1                    3                  3                 1  2            2     1
   907                1  3     1     2     1                 2  2         1  1  1  1                    4                  4

 TOTAL       2  6     3  7     4  4  3  5  3        3  1     6  8         1  2  6 10              1     9  8            4  7  8
*PERCENT    11 33    17 39    21 21 16 26 16       17  6    33 44         5 11 32 53              6    50 44           21 37 42

VARIABLE:  FMO-A 452  ADULT OPEN ENDED QUES.      FMO-A 453  ADULT RESP. TO CHILD        FMO-A 456  ALL CHILD TASK-RELATED
                      TO CHILDREN                            QUES. WITH QUES.                       COMMENTS
GRADE:      - - FIRST - -     - - THIRD - -        - - FIRST - -     - - THIRD - -        - - FIRST - -     - - THIRD - -
QUINTILE:    1  2  3  4  5     1  2  3  4  5        1  2  3  4  5     1  2  3  4  5        1  2  3  4  5     1  2  3  4  5
  SITE
   901       1  2        1     1  1     1  1           3  1              1     3           1  3              3  1
   902          1  1  1  1           1     3              1  3              1  1  2           1     1  2        1     3
   903             1  1  1        2     1  1           1  1  1           1     3                    1  2           2  1  1
   906       2     1                 2     1                    1  2              1  2                    3           1  2
   907             1     3        1     1  2              2  2           2     2              2        2     2     1  1

 TOTAL       3  3  4  2  6     1  4  3  3  8           4  5  7  2        4  1 10  4        1  6     2  9     5  2  4  7  1
*PERCENT    17 17 22 11 33     5 21 16 16 42          22 28 39 11       21  5 53 21        6 33    11 50    26 11 21 37  5

VARIABLE:  FMO-C 510  CHILD SELF-INSTRUCTION,     FMO-C 513  CHILD TASK PERSISTENCE      FMO-C 514  TWO CHILDREN USING
                      OBJECTS                                                                       OBJECTS
GRADE:      - - FIRST - -     - - THIRD - -        - - FIRST - -     - - THIRD - -        - - FIRST - -     - - THIRD - -
QUINTILE:    1  2  3  4  5     1  2  3  4  5        1  2  3  4  5     1  2  3  4  5        1  2  3  4  5     1  2  3  4  5
  SITE
   901                   4           1     3           2     2         2        1  1                 4                  4
   902                1  3              3  1        3  1               1  1     1  1                 3  1               3  1
   903                   3              1  3           3               3     1                       3                  4
   906                   3              3           1  1     1         1  1        1                 3                  3
   907                2  2           3  1                 1  2  1      4                             4                  4

 TOTAL                3 15           4  8  7        4  7  1  5  1     11  2  1  2  3                17  1              18  1
*PERCENT             17 83          21 42 37       22 39  6 28  6     58 11  5 11 16                94  6              95  5

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE
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Table M-7 (Concluded)

HIGH / SCOPE : FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES PAGE 9- 4

VARIABLE: FMO-C 515 SMALL GROUP USING OBJECTS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901				3	1				4	
902				4					4	
903				3					4	
906				3					3	
907				4					4	
TOTAL				17	1				19	
*PERCENT				94	6				100	

VARIABLE: FMO-C 599 CHILD SELF INSTRUCTION, NON-ACADEMIC

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
901			1	1	2		1		2	1
902			1	1	2			1	2	1
903			3			1	3			
906			1		2			1	1	1
907	1		1		2	1		1	2	
TOTAL	1		7	2	8	2	4	3	7	3
*PERCENT	6		39	11	44	11	21	16	37	16

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

HIGH / SCOPE : TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS, SITE, AND SPONSORS PAGE 9- 1

	- - - - - - - FIRST GRADE - - - - - - -						- - - - - - - THIRD GRADE - - - - - - -					
	- - - - - CLASSROOM - - - - -				MEAN	S.D.	- - - - - CLASSROOM - - - - -				MEAN	S.D.
SITE												
Greenwood, Miss.	71.0	67.6	70.3	76.6	71.4	3.8	70.3	73.1	75.2	74.5	73.3	2.1
Ft. Walton Beach, Fla.	77.9	73.8	79.3	75.9	76.7	2.4	83.4	83.4	80.7	78.6	81.6	2.3
New York City	66.2	71.7	71.0		69.7	3.0	66.9	62.1	64.8	64.8	64.7	2.0
Greeley, Colo.	82.8	81.4	82.8		82.3	.8	80.0	80.0	86.2		82.1	3.6
Denver, Colo.	86.9	80.7	80.7	82.8	82.8	2.9	73.1	71.7	78.6	76.6	75.0	3.2
Sponsor Scores (N=18)					76.6	6.0	Sponsor Scores (N=19)				75.0	6.9
NFT Scores (N=35)					63.7	5.8	NFT Scores (N=36)				63.5	6.8

t = 7.58
p > .001

t = 5.93
p > .001

Table M-8

EDUCATION DEVELOPMENT CENTER : FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES PAGE 11- 1

VARIABLE: PEI 24 CHILD SELECTION OF SEATING AND WORK GROUPS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101					4		2	1	1	
1103			2		2		4			
1106					4			2		2
1107		2			1				1	2
1108					4				1	1
TOTAL		2	2		15		6	3	3	5
*PERCENT		11	11		79		35	18	18	29

PEI 25 GAMES, TOYS, PLAY EQUIPMENT PRESENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101					4				2	2
1103				1	3					4
1106			1		3		1			3
1107					3			2	1	
1108					4					2
TOTAL			1	1	17		1	2	3	11
*PERCENT			5	5	89		6	12	18	65

PEI 39 GENERAL EQUIPMENT, MATERIALS PRESENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101			3	1		3		1		
1103		1	3						2	2
1106	1	1	1	1		1			2	1
1107	2	1					1		2	
1108			3	1				2		
TOTAL	3	3	10	3		4	1	3	6	3
*PERCENT	16	16	53	16		24	6	18	35	18

VARIABLE: CCL-A 66 NUMBERS, MATH, ARITHMETIC

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101						1	3			
1103							1	2		1
1106									3	1
1107										3
1108							1	1		
TOTAL						1	5	3	3	5
*PERCENT						6	29	18	18	29

CCL-A 67 READING, ALPHABET, LANGUAGE DEVELOPMENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101						4				
1103							1	2	1	
1106						2	1	1		
1107						2	1			
1108								2		
TOTAL						8	3	5	1	
*PERCENT						47	18	29	6	

CCL-A 83 VARIETY OF ACTIVITIES, OVER ONE DAY

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101					4				1	3
1103			2		2	1	1		1	1
1106					4				2	2
1107					3	1			1	1
1108					4					2
TOTAL			2		17	2	1		5	9
*PERCENT			11		89	12	6		29	53

VARIABLE: CCL-B 114 ONE CHILD INDEPENDENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101					4					4
1103	1	1		1	1		2		1	1
1106				2	2				1	3
1107				1	2					3
1108					4					2
TOTAL	1	1		4	13		2		2	13
*PERCENT	5	5		21	68		12		12	76

CCL-B 115 TWO CHILDREN INDEPENDENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101					4					4
1103		1	1		2			2		2
1106			1		3					4
1107				2	1					3
1108					4					2
TOTAL		1	2	2	14			2		15
*PERCENT		5	11	11	74			12		88

CCL-B 116 SMALL GROUP OF CHILDREN INDEPENDENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101			1		3				1	3
1103	1		1	2				1	1	2
1106			1		3					4
1107					3					3
1108					4			1		1
TOTAL	1		3	2	13			2	2	13
*PERCENT	5		16	11	68			12	12	76

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-8 (Continued)

EDUCATION DEVELOPMENT CENTER : FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES PAGE 11- 2

VARIABLE: CCL-J 239 MATH OR SCIENCE EQUIPMENT/ ACA. ACT.

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE: / SITE	1	2	3	4	5	1	2	3	4	5
1101			3		1			3		1
1103		2		2				2	2	
1106		3			1			3	1	
1107					3					3
1108					4			1	1	
TOTAL		5	3	2	9			9	4	4
*PERCENT		26	16	11	47			53	24	24

FMO-A 344 INDIVIUAL CHILD VERBAL INTERACTION/ ADULT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE: / SITE	1	2	3	4	5	1	2	3	4	5
1101					4				2	2
1103	3			1		1	1	2		
1106			1	3				1		3
1107		1	1	1				1		2
1108		1	1	1	1					2
TOTAL	3	2	3	6	5	1	1	4	2	9
*PERCENT	16	11	16	32	26	6	6	24	12	53

FMO-A 35n CHILD QUESTIONS TO ADULT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE: / SITE	1	2	3	4	5	1	2	3	4	5
1101					4					4
1103	1	2	1			1		1	1	1
1106	1		1	2				2		2
1107			1		2				1	2
1108	1		1	2					2	
TOTAL	3	2	4	4	6	1		3	4	9
*PERCENT	16	11	21	21	32	6		18	24	53

VARIABLE: FMO-A 375 ADULT INSTRUCTS ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE: / SITE	1	2	3	4	5	1	2	3	4	5
1101			1	1	2				2	2
1103	2	2				2	1	1		
1106				2	2				1	3
1107					3					3
1108			2	2				1	1	
TOTAL	2	2	3	5	7	2	1	2	4	8
*PERCENT	11	11	16	26	37	12	6	12	24	47

FMO-A 39n ADULT TASK-RELATED COMMENTS TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE: / SITE	1	2	3	4	5	1	2	3	4	5
1101				1	3				2	2
1103					4					4
1106		1	2	1		3	1			
1107			3					1	2	
1108				2	2					2
TOTAL		1	5	4	9	3	1	1	4	8
*PERCENT		5	26	21	47	18	6	6	24	47

FMO-A 438 ADULT FOCUS - ONE CHILD

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE: / SITE	1	2	3	4	5	1	2	3	4	5
1101					4				2	2
1103	3			1		2	2			
1106				2	2					4
1107					3		1			2
1108				4					2	
TOTAL	3			7	9	2	3		4	8
*PERCENT	16			37	47	12	18		24	47

VARIABLE: FMO-A 45n ALL CHILD OPEN ENDED QUESTIONS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE: / SITE	1	2	3	4	5	1	2	3	4	5
1101				2	2					4
1103				1	3				4	
1106				4					4	
1107				3					3	
1108				2	2				2	
TOTAL				12	7				13	4
*PERCENT				63	37				76	24

FMO-A 452 ADULT OPEN ENDED QUES. TO CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE: / SITE	1	2	3	4	5	1	2	3	4	5
1101	1			1	2			1		3
1103				1	3	1	3			
1106	3			1		4				
1107	3						1	2		
1108		1		1	2		1	1		
TOTAL	7	1		4	7	5	5	4		3
*PERCENT	37	5		21	37	29	29	24		18

FMO-A 453 ADULT RESP. TO CHILD QUES. WITH QUES.

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE: / SITE	1	2	3	4	5	1	2	3	4	5
1101				1	3				1	3
1103		1	1	2			1	1	2	
1106		3	1				1	2	1	
1107			1		2				3	
1108			3	1			1		1	
TOTAL		4	6	4	5		3	3	8	3
*PERCENT		21	32	21	26		18	18	47	18

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-8 (Continued)

EDUCATION DEVELOPMENT CENTER :   FREQUENCY DISTRIBUTION OF CLASSROOMS OVER IMPLEMENTATION SCORES   PAGE 11- 3

VARIABLE: FMO-A 461 ALL CHILD POSITIVE AFFECT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101			1	3						4
1103		1	3					2	2	
1106			1	2	1	1	1	1	1	
1107	3						1	2		
1108				2	2			1	1	
TOTAL	3	1	5	7	3	1	2	6	4	4
*PERCENT	16	5	26	37	16	6	12	35	24	24

VARIABLE: FMO-C 518 CHILD SELF-INSTRUCTION, OBJECTS

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101		1		1	2			2	2	
1103		4						2	1	1
1106		1	1	2				1	2	1
1107		1			2			1		2
1108		2			2					2
TOTAL		9	1	3	6			6	5	6
*PERCENT		47	5	16	32			35	29	35

VARIABLE: FMO-C 516 SOCIAL INTERACTION AMONG CHILDREN

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101				2	2		1		1	2
1103	2			1	1				1	3
1106			2	2		1		1		2
1107	3									3
1108	1		1	2		2				
TOTAL	6		3	7	3	3	1	1	2	10
*PERCENT	32		16	37	16	18	6	6	12	59

VARIABLE: FMO-C 574 CHILD MOVEMENT

GRADE:	- - FIRST - -					- - THIRD - -				
QUINTILE:	1	2	3	4	5	1	2	3	4	5
SITE										
1101				1	3			1	1	2
1103			2		2				2	2
1106			1		3	3	1			
1107	2	1							2	1
1108	1		2		1				1	1
TOTAL	3	1	5	1	9	3	1	1	6	6
*PERCENT	16	5	26	5	47	18	6	6	35	35

* PERCENT OF CLASSROOMS FOR A SPONSOR IN A GIVEN GRADE IN A GIVEN QUINTILE

Table M-8 (Concluded)

EDUCATION DEVELOPMENT CENTER : TOTAL IMPLEMENTATION SCORES FOR CLASSROOMS, SITE, AND SPONSORS

	FIRST GRADE						THIRD GRADE					
SITE	CLASSROOM				MEAN	S.D.	CLASSROOM				MEAN	S.D.
Burlington, Vt.	91.0	91.0	86.0	93.0	90.2	3.0	85.5	81.8	79.1	75.5	80.5	4.2
Philadelphia, Pa.	72.0	80.0	58.0	48.0	64.5	14.3	75.5	64.5	73.6	59.1	68.2	7.7
Paterson, N.J.	70.0	79.0	79.0	73.0	75.2	4.5	67.3	69.1	77.3	73.6	71.8	4.5
Rosebud, Texas	72.0	68.0	71.0		70.3	2.1	85.5	80.0	79.1		81.5	3.4
Smithfield, N.C.	85.0	76.0	86.0	83.[illegible]	82.5	4.5	76.4	79.1			77.7	1.9
Sponsor Scores (N=19)					76.9	11.5	Sponsor Scores (N=17)				75.4	7.1
NFT Scores (N=35)					61.2	9.6	NFT Scores (N=36)				60.7	10.6

t = 5.35
p > .001

t = 5.18
p > .001

Appendix N

ASSESSMENT OF THE STABILITY OF THE IMPLEMENTATION SCORES

Appendix N

ASSESSMENT OF THE STABILITY OF THE IMPLEMENTATION SCORES

The accuracy and stability of the implementation score assigned to a particular Follow Through classroom for a particular variable depends on the accuracy of the quintile estimates and the accuracy of the estimate of the Follow Through classroom value. Error in estimating the quintiles comes from "sampling" Non-Follow Through classrooms and from "sampling" classdays for each classroom. The former is related to the number of classrooms observed and the procedure of sampling classrooms; the latter is related to the day-to-day variability of Non-Follow Through classrooms. The stability of the quintile estimates is examined in Section 1.

The accuracy of the estimate of the Follow Through classroom value depends on the location of the classroom value in relation to the quintile cutpoints and on the magnitude of the day-to-day variability of the variable under consideration.* If the classroom value is much larger than the fourth quintile cutpoint, then the implementation score will be correct with a high degree of certainty even if the day to day variability is quite large. On the other hand, if the classroom value is near a quintile cutpoint, the day to day variability may need to be quite low for the implementation score to be reliable. This issue is examined in Section 2.

1. The Stability of the Quintile Cutpoints

There are two factors that relate to the stability and accuracy of the quintile cutpoints:**

- Sampling of classdays for each Non-Follow Through classroom.
- Sampling of Non-Follow Through classrooms.

The former is related to the day to day variability found in Non-Follow Through classrooms; the latter is related to the number of classrooms observed and the procedure of sampling classrooms. These factors are relevant when an implementation score is interpreted as an estimate of a Follow Through classroom's location relative to the total population of classrooms that may be considered Non-Follow Through comparisons. Even if we consider the procedure of obtaining implementation scores as a way of scaling the scores of Follow Through classrooms, the stability of such a scale is certainly of interest. Throughout this section we will assume that the Non-Follow Through classrooms are a random sample. This assumption is obviously violated, but it is necessary for the sake of obtaining any notion of the stability of the quintile estimates.

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*Related issues of the reliability and validity of the classroom observation data are pursued in Chapter IV.

**The assumption throughout this section is that there is a hypothetical population of Non-Follow Through classrooms and that the quintile cutpoints that are based on the Classroom Observation data are estimates of the population quintile cutpoints.

For the sake of simplicity, we will assume that the COI variable under consideration is continuous. The quintile cutpoints are based on 35 or 36 Non-Follow Through classrooms. Each classroom value is, in turn, based on two or three days of observation. If we make the assumptions that the errors from day to day are independent and normally distributed with mean zero and standard deviation σ_ϵ and if we assume that the distribution of the Non-Follow Through classroom values that are being estimated is normal with standard deviation σ, then the distribution of the estimated Non-Follow Through classroom values will be normal with standard deviation

$$\sqrt{\sigma^2 + \frac{\sigma_\epsilon^2}{n}}$$

where n is the number of days observation. Thus, the variance of the estimated Non-Follow Through classroom values will be greater than the variance of the actual classroom values. The effect of the day to day variability is to make the first and second quintile estimates derived from the estimated classroom values to be lower and the third and fourth quintile estimates to be higher than those in the distribution of the actual classroom values. The magnitude of these discrepancies, under the assumptions made here, will depend on the ratio

$$\frac{\sigma_\epsilon^2/n}{\sigma^2}$$

where n is the number of days of observation. The lower this ratio, the less difference there will be between the two distributions. For the variables we have selected for examination, the estimate of this ratio is less than .5.

To assess the precision of the quintile estimates, 95 percent confidence intervals for the quintiles of the estimated classroom distribution were calculated.* These were then transformed to represent intervals for the actual classroom values, assuming that

$$\frac{\sigma_{\epsilon}^{2}/n}{\sigma^{2}}$$

is equal to .5. The endpoints of these intervals are displayed in Table N-1 for each quintile. These computations were based on a sample size of 35 and 36, which corresponds to the number of Non-Follow Through classrooms at each grade level. Where the sample size might be reduced because of missing data, the intervals would be slightly longer.

Table N-1

95 PERCENT CONFIDENCE INTERVALS FOR THE QUINTILE ESTIMATES EXPRESSED IN PERCENTILES OF THE CLASSROOM DISTRIBUTION

Quintile Cutpoint	Corresponding Percentile	Confidence Interval
1	20	6 - 31
2	40	22 - 61
3	60	39 - 78
4	80	69 - 94

Consider the first quintile cutpoint as an example of how to interpret the confidence interval. If the experiment of sampling 36 classrooms over two or three days were replicated many times, then in 95 percent of the replications the first cutpoint, that is supposed to represent the 20th percentile, will be somewhere between the 6th and the 31st percentile of the Non-Follow Through classroom distribution.

These confidence intervals are rather wide, especially for the second and third quintiles. In terms of the implementation scores, these results indicate that for a given Follow Through classroom, the true implementation score may be plus or minus one unit from the observed score with a high degree of confidence when we ignore the day to day variability of the Follow Through classroom value. That is, if a classroom received a score of four, there is a good chance that the "true" score might be anywhere between three and five because of the variability of the quintile estimates. The variability of the Follow Through classroom value would add to the width of this interval, as we will see in Section 2.

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*See the technical note at the end of this appendix for a description of the details of the computations.

The effect of the day to day variability of the Non-Follow Through classrooms on the quintile estimates may be examined by comparing the confidence intervals in Table N-1 with those in Table N-3 in the technical note at the end of this section. The intervals in Table N-3 are expressed in terms of percentiles of the observed Non-Follow Through classroom distribution; the intervals in Table N-1 are expressed in terms of percentiles of the actual Non-Follow Through distribution, under the assumptions of normality described earlier in this section. As might be expected, the intervals for the first two quintiles, generally, shift downward from Table N-3 to Table N-1. However, the shift is only slight. We conclude that the day to day variability has only a marginal effect on the quintile estimates in comparison to the number of classrooms sampled.

2. The Effect of the Day-to-Day Variability

As was stated at the beginning of this appendix the effect of the day-to-day variability of the Follow-Through Classroom values on the implementation scores will depend on the location of the classroom value as well as the magnitude of the day-to-day variability. To assess the stability of the implementation scores, probability distributions of the score were computed for selected values of classroom means and standard errors on selected variables. Each probability represents the chance that a classroom with a given classroom value and with classroom day-to-day standard deviation will be assigned a given implementation score. The computations were based on two assumptions:

- The deviations from day-to-day are independent and normally distributed; and

- The quintiles are given fixed numbers.

This second assumption has the effect of making the probabilities conditional on the quintile estimates that were derived in the current analysis. The assumption that the estimated classroom value and the quintile estimates are both random is more realistic, but the computations become unwieldy.

Table N-2 contains the results of these computations for selected sponsors. The sponsors were selected to provide a range of values for

Table N-2

PROBABILITY DISTRIBUTION OF IMPLEMENTATION SCORES FOR A GIVEN CLASSROOM MEAN AND STANDARD ERROR

(First Grade)

Variables		Sponsor	Classroom Value	SE	"True Score"	Probability of Obtaining an Implementation Score of:****				
No.	Name					1	2	3	4	5
66*	Numbers, math, arithmetic	UK	21.3	2.0	4	.00	.02	.14	.68	.16
		BC	15.7	5.5	2	.21	.38	.15	.17	.08
		HS	19.8	7.7	4	.13	.23	.11	.21	.32
67**	Reading, alphabet, language development	UA	41.8	6.8	2	.33	.42	.22	.02	.01
		UO	54.6	5.0	4	.00	.05	.43	.31	.21
451a***	Adult academic comm./req. & direct questions to children	BC	7.7	.93	3	.06	.11	.37	.38	.08
		UK	9.8	1.3	5	.00	.01	.05	.21	.73

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* The estimated quintiles for variable 66 are 11.2, 17.0, 19.3, and 23.3.

** The estimated quintiles for variable 67 are 38.8, 46.4, 54.3, and 58.6.

*** The estimated quintiles for variable 451a are 5.2, 6.8, 7.8, and 9.0.

**** These probabilities represent the chance that a classroom with a given classroom mean and standard error will get any given implementation score. The reliability of the implementation scores may be assessed by examining the chances of attaining the "true score."

Table N-3

THE VALUE OF l_o AND u_o EXPRESSED IN PERCENTILES FOR EACH QUINTILE OF NON-FOLLOW THROUGH

(N = 36)

Quintile Cutpoint	Corresponding Percentile	Confidence Level		
		$l_o \times 100$		$u_o \times 100$
1	20	10	-	34
2	40	26	-	59
3	60	41	-	74
4	80	66	-	90

the classroom value. The within-classroom standard deviation* for the selected set of CCL and FMO variables were first computed. The estimates for the CCL variables were based on all three days of observation per class; the estimates for the FMO variables were based on the two days of adult-focus observations. The unit of analysis was the day of observation. The estimates were computed separately for each sponsor. Note that the estimates of day-to-day variability are based on three consecutive days of observation in each classroom. The standard error is defined as the standard deviation divided by the square root of the number of days of observation. The estimated quintile cutpoints were taken from Table M-1 in Appendix M for the first grade.

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*If y_{ij} is the value of a given COI variable on day j in class i, then the within-class standard deviation is estimated by:

$$S = \sqrt{\frac{\sum_{ij}\left(y_{ij} - \bar{y}_i\right)^2}{n - B}}$$

where $\bar{y}_i$ is the mean for classroom i
n is the total number of class days
B is the total number of classrooms

The definition of y_{ij} is the same as that used for the classroom, except that only COPs for the given day are used in the computations.

The figures in Table N-2 indicate that, generally, the implementation scores will be within one point of their true value with a high degree of chance. The exceptions will occur, as we anticipated, in those cases when the day-to-day variability is large relative to the range of estimated quintile values and the classroom value is centrally located in the Non-Follow Through distribution. For the three variables we examined, this appears to be the exception.

3. Summary

The results from Section 1 indicate that the day-to-day variability for the Non-Follow Through classrooms has only a marginal effect on the quintile estimates in comparison with the number of classrooms included in the Non-Follow Through sample. From the computations carried out in Section 2, it appears that for fixed quintile values and an estimated classroom value, the estimated implementation score will be within one of the true score. The condition under which the implementation scores are computed is that both the Non-Follow Through quintile scores and the Follow Through classroom values are estimated. Under such conditions the reliability of the implementation scores will be decreased from both hypothetical situations. The compound effect of estimating the Follow Through classroom value and estimating the Non-Follow Through quintiles is that the estimated implementation score assigned a particular Follow Through classroom may be different from the true score by as much as two points. In the worst situation, a classroom that has a true implementation score of 3 appears to have a substantial chance of getting an observed score on an individual variable of from 1 to 5.

It will be necessary in the assessment of site implementation and sponsor exportability to take into account the low reliability of individual classroom scores. The observation of approximately four classrooms per site and 20 classrooms per sponsor in each grade level does mitigate the low reliability of individual classroom scores since we are examining patterns of scores among classrooms. Also, the overall implementation score for each classroom, defined as the sum of the scores across implementation variables, will be much more reliable than the scores for each individual variable.

TECHNICAL NOTE

This note outlines the derivation of the confidence interval for the quintile estimates in terms of percentiles.

Assume $X_1, X_2, \ldots, X_n$ are independent, identically distributed continuous random variables with a cumulative distribution function $F(x)$ that is strictly increasing.

Let $X_{(1)}, X_{(2)}, \ldots X_{(n)}$ be the corresponding order statistics

i.e.

$X_{(1)}$ is the smallest of $X_1, \ldots, X_n$

$X_{(2)}$ is the next smallest, etc.

Let $Y_{(i)} = F(X_i)$ for $i = 1, \ldots, n$ and

Let $Y_{(i)}$ be the ith order statistic of $Y_1, \ldots, Y_n$

It is well known that:

(1) $Y_1, \ldots, Y_n$ are independent, identically distributed random variables with a uniform distribution.

(2) $Y_{(k)}$ has a beta distribution with parameters k and n-k+1 for each value of k.*

By referring to the beta distribution, we can find constants l_o and u_o such that

$$P\left[Y_{(k)} < l_o\right] = \alpha/2 \quad \text{and} \quad P\left[Y_{(k)} < u_o\right] = \alpha/2 \text{ so that}$$

$$P\left[l_o \leq Y_{(k)} \leq u_o\right] = 1 - \alpha$$

But $Y_{(k)} = F\left[X_{(k)}\right]$.

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*See problem 10.5, Rao, 1965.

Thus $$P\left(l_o \leq F\left[X_{(k)}\right] \leq u_o\right) = 1 - \alpha \quad .$$

Since F is strictly increasing, this may be expressed.

$$(3) \quad P\left[F^{-1}(l_o) \leq X_{(k)} \leq F^{-1}(u_o)\right] = 1 - \alpha \quad .$$

But $F^{-1}(y)$ for $o < y < 1$ corresponds to the 100(y)th percentile of the distribution of X_i. Therefore, we may interpret (3) above as stating that with probability $1 - \alpha$, the kth order statistic will fall between the $100(l_o)$-th and $100(u_o)$-th percentile of the distribution of X_i.

For our purpose the X_i represents the value on a classroom observation variable for the ith Non-Follow Through classroom. The parameter k is chosen so that $X_{(k)}$ is the estimate of a quintile cutpoint. Then l_o and u_o may be found for $1 - \alpha = .95$ using a table of the beta or the F distribution. For n = 36 the values of k for the four quintile cutpoints were 8, 15, 22, and 29 respectively. Table N-3 contains the values of l_o and u_o for each quintile.

To derive the figures in Table N-1 from those on Table N-3 the percentiles of the distribution of estimated classroom values are transformed to the percentiles of the distribution of the actual classroom values. The assumptions are that the actual classroom values have a normal distribution with standard deviation σ, that n days of observation are made, and that the day-to-day deviations from a given classroom's value are independently normally distributed with a standard deviation of σ_ϵ.

Let X_α = the αth percentile on the estimated distribution

Z_α = the αth percentile on the standardized normal distribution (mean = 0, standard deviation = 1)

Then

$$X_\alpha = \quad \sigma^2 + \frac{\sigma_\epsilon^2}{n} \qquad Z_\alpha + \mu$$

Standardizing X_α in terms of the distribution of the actual classroom values we have:

$$W = \frac{X_\alpha - \mu}{\sigma} = \sqrt{1 + \frac{\sigma_\epsilon^2}{n\sigma^2}} \quad Z_\alpha$$

For any α on the estimated classroom distribution, we can find Z_{α} in tables of the cumulative normal probability distribution, apply the transformation for a given value of

$$\frac{\sigma_{\epsilon}^{2}/n}{\sigma^{2}}$$

and then consult the cumulative normal tables again to find the percentile in the distribution of the actual classroom values.

Appendix O

PEARSON CORRELATIONS

Appendix O-1

PEARSON CORRELATION OF SPONSOR CRITICAL VARIABLES USED IN IMPLEMENTATION SCORES--FAR WEST LABS

FIRST GRADE		V019 V24	V020 V25	V034 V39	V058 V66	V059 V67	V075 V83	V078 V86	V084 V92	V106 V114	V108 V116	V195 V239	V222 V344	V228 V350	V253 V375	V264 V394	V290 V420	V291 V421	V296 V438	V300 V444	V307 V452	V311 V456	V312 V457	V314 V460	V367 V516	V408 V574	V430 V599
VAR019, V24	Child selection	1.00	.16	-.42	-.11	.18	-.08	.40	-.39	-.35	.16	.05	-.44	-.29	.33	-.47	-.09	.24	.08	-.53	-.27	.05	-.34	-.19	.38	.15	-.10
020, V25	Games, toys, play equipment	.16	1.00	-.03	.22	-.65	.42	.38	.11	.31	-.17	.00	.33	.46	.37	-.71	-.47	-.09	.14	-.50	-.08	-.15	-.16	.52	.25	.08	.32
034, V39	General equipment present	-.42	-.03	1.00	-.17	.04	.10	-.23	.04	.29	-.09	-.47	.40	.15	-.15	.16	.11	-.14	.17	.36	.07	-.42	.33	-.15	-.18	-.06	-.17
058, V66	Numbers, math	-.11	.22	-.17	1.00	.01	-.33	-.08	.15	-.06	-.11	.31	.23	.09	-.31	-.14	-.28	.09	.21	-.23	-.29	-.06	.30	.04	.11	-.00	-.17
059, V67	Reading, language	.18	-.65	.04	.01	1.00	-.56	-.28	-.32	-.27	.17	.05	-.28	-.39	-.37	.53	.29	.32	.15	.25	-.06	-.04	.32	-.52	-.14	-.33	-.60
075, V83	Wide variety of activities, one day	-.08	.42	.10	-.33	-.56	1.00	.44	.40	.32	.04	-.01	.31	.15	.46	-.39	-.48	-.24	-.00	-.15	.06	.20	-.20	.54	.19	-.03	.44
078, V86	Teacher with one child	.40	.38	-.23	-.08	-.28	.44	1.00	.24	.40	.26	.20	-.10	.11	.33	-.31	-.16	.48	.37	-.47	.02	.34	-.30	.34	.39	.09	.36
084, V92	Aide with one child	-.39	.11	.04	.15	-.32	.40	.24	1.00	.59	.22	.03	.34	.46	-.07	-.03	-.40	.19	.39	.15	-.11	.08	.48	.12	.35	.24	.23
106, V114	One child without adult	-.35	.31	.29	-.06	-.27	.32	.40	.59	1.00	.25	-.14	.33	.83	.12	-.04	.08	.20	.31	.07	.26	.03	.23	.20	.31	.07	.44
108, V116	Small group without adults	.16	-.17	-.09	-.11	.17	.04	.26	.22	.25	1.00	.36	-.11	-.09	.26	.01	-.03	.24	.37	-.04	.19	.21	-.10	-.26	.23	.22	.30
195, V239	Math or science equipment	.05	.00	-.47	.31	.05	-.01	.20	.03	-.14	.36	1.00	-.12	-.23	-.07	-.06	-.31	.29	.07	-.39	.09	.26	-.25	.05	.21	.06	.22
222, V344	Child interaction with adult, verbal	-.44	.33	.40	.23	-.28	.31	-.10	.34	.33	-.11	-.12	1.00	.44	.19	-.03	-.43	-.37	.42	.12	.25	-.44	.33	.32	-.16	.06	.19
228, V350	Child questions to adult	-.29	.46	.15	.09	-.39	.15	.11	.46	.53	-.09	-.23	.44	1.00	.02	-.19	-.19	-.17	.24	.10	-.14	.01	.30	.34	.32	.17	.14
253, V375	Adult instructions to child	.34	.37	-.15	-.31	-.37	.46	.33	-.07	.12	.26	-.07	.19	.02	1.00	-.47	-.27	-.17	.15	-.08	.39	-.12	-.56	.15	.06	-.12	.48
264, V394	All adult acknowledgment to children	-.47	-.71	.16	-.14	.53	-.39	-.31	-.03	-.04	.01	-.06	-.03	-.19	-.47	1.00	.49	.19	.05	.65	.34	-.01	.20	-.12	-.55	-.14	-.22
290, V420	Adults attentive to small group	-.09	-.47	.11	-.28	.29	-.48	-.16	-.40	.08	-.03	-.31	-.43	-.19	-.27	.49	1.00	-.01	-.46	.21	.36	.23	-.16	-.09	-.27	-.24	-.04
291, V421	Adults attention to child	.24	-.09	-.14	.09	.32	-.24	.48	.19	.20	.48	.29	-.37	-.17	-.17	.19	-.01	1.00	.60	-.10	-.12	.09	.07	-.32	.17	.19	.02
296, V438	Adult focus one child	.08	.14	.17	.21	.15	-.00	.37	.39	.31	.37	.07	.42	.24	.15	.05	-.46	.60	1.00	.08	-.05	-.33	.31	-.20	.14	.35	.06
300, V444	Adult movement	-.52	-.50	.36	-.23	.25	-.15	-.47	.15	.07	-.04	-.39	.12	.10	-.08	.65	.21	-.10	.08	1.00	.18	-.20	.23	-.26	-.39	.07	-.20
307, V452	Adult open to children	-.27	-.08	.07	-.29	-.06	.06	.02	-.11	.26	.19	.09	.25	-.14	.39	.34	.36	-.12	-.05	.18	1.00	-.07	-.43	.31	-.46	-.24	.46
311, V456	All child task comment	.05	-.15	-.42	-.06	-.04	.20	.34	.08	.03	.21	.26	-.44	.01	-.12	-.01	.23	.09	-.33	-.20	-.07	1.00	-.34	.39	.32	-.15	.17
312, V457	Adult positive corrective feedback	-.34	-.16	.33	.30	.32	-.20	-.30	.48	.23	-.10	-.25	.33	.30	-.56	.20	-.16	.79	.31	.23	-.43	-.34	1.00	-.34	.04	-.05	-.48
314, V460	All child positive affect	-.19	.52	-.15	.04	-.52	.54	.34	.12	.20	-.26	.05	.32	.34	.15	-.12	-.09	-.32	-.20	-.26	.31	.39	-.34	1.00	-.10	-.32	.37
367, V516	Social interaction children	.38	.25	-.18	.11	-.14	.19	.39	.35	.31	.23	.21	-.16	.32	.06	-.55	-.27	.17	.14	-.39	-.46	.32	.04	-.10	1.00	.42	.13
408, V574	Child movement	.15	.08	-.06	-.00	-.33	-.03	.09	.24	.07	.22	.06	.06	.17	.12	-.14	-.24	.19	.35	.07	-.24	-.15	-.05	-.32	.42	1.00	.31
430, V599	Child self instruction, nonacademic	-.10	.32	-.17	-.17	-.60	.44	.36	.23	.44	.30	.22	.19	.14	.48	-.22	-.04	.02	.06	-.20	.46	.17	-.48	.37	.13	.31	1.00

THIRD GRADE		V019 V24	V020 V25	V034 V39	V058 V66	V059 V67	V075 V83	V078 V86	V084 V92	V106 V114	V108 V116	V195 V239	V222 V344	V228 V350	V253 V375	V264 V394	V290 V420	V291 V421	V296 V438	V300 V444	V307 V452	V311 V456	V312 V457	V314 V460	V367 V516	V408 V574	V430 V599
VAR019, V24	Child selection	1.00	-.26	.42	.16	-.94	.45	.33	-.16	.08	-.10	.10	.05	.21	-.17	-.51	-.35	-.23	-.17	-.24	.14	.26	-.42	-.40	-.26	.05	.36
020, V25	Games, toys, play equipment	-.26	1.00	-.40	.03	-.46	.23	-.05	.14	.36	.24	.32	.02	-.57	-.01	.15	.38	.62	.27	-.10	.06	.01	.30	.39	.48	.09	.23
034, V39	General equipment present	.42	.40	1.00	.14	.14	.15	.13	-.02	.21	.03	-.10	.26	.68	.14	-.06	.09	-.28	.16	.18	.20	-.02	.12	.02	-.33	-.13	-.32
058, V66	Numbers, math	.16	-.03	.14	1.00	-.09	.44	.23	.13	.52	-.06	.08	-.03	.15	-.05	-.05	-.21	.27	.22	.43	.04	-.40	.04	-.05	.06	.44	-.09
059, V67	Reading, language	.09	-.46	.14	-.09	1.00	-.50	-.36	-.35	-.27	-.11	-.64	.21	.25	.15	.17	.08	-.22	.05	.10	-.29	-.08	-.02	-.17	-.12	-.01	-.07
075, V83	Wide variety of activities, one day	.45	.23	.15	.44	-.50	1.00	.41	.08	.41	.12	.33	-.23	-.00	-.13	-.22	.08	.17	-.04	.13	.12	.19	-.24	.09	.17	.37	.17
078, V86	Teacher with one child	.33	-.05	.13	.23	-.36	.41	1.00	.68	.51	.22	.25	.08	.13	.30	.02	-.32	.31	.26	-.01	.12	.08	-.07	-.30	-.06	.29	.33
084, V92	Aide with one child	-.16	.14	-.02	.13	-.35	.08	.68	1.00	.47	.06	.28	.16	-.05	.29	.07	-.28	.32	.26	-.11	-.12	-.09	.05	-.09	-.00	.19	.04
106, V114	One child without adult	.08	.36	.21	.52	-.27	.41	.51	.47	1.00	.24	.44	.36	.25	.41	.07	.01	.64	.70	.26	-.11	-.18	.39	-.03	.32	.53	.03
108, V116	Small group without adults	-.10	.24	.03	-.06	-.11	.12	.22	.06	.24	1.00	.01	.14	-.16	.19	.28	-.15	.40	.37	.23	.51	.13	.46	.14	.21	.28	.20
195, V239	Math or science equipment	.10	.32	-.10	.08	-.64	.33	.25	.28	.44	.01	1.00	-.02	-.14	.00	-.26	-.18	.38	.20	-.19	.26	.04	.14	-.02	.04	.08	.23
222, V344	Child interaction with adult, verbal	-.05	.02	.26	-.03	.21	-.23	.08	.16	.36	.14	-.02	1.00	.47	.69	.17	.03	.11	.78	.12	-.04	.36	.40	.15	.44	.40	.11
228, V350	Child questions to adult	.21	-.57	.68	.15	.25	-.00	.13	-.05	.25	-.16	-.14	.47	1.00	.28	.01	.05	-.25	.31	.32	-.04	.03	.13	-.02	-.03	.15	-.43
253, V375	Adult instructions to child	-.17	-.01	.14	-.05	.15	-.13	.30	.29	.41	.19	.00	.69	.28	1.00	.26	.05	.24	.74	.22	-.04	.20	.32	-.04	.31	.35	.10
264, V394	All adult acknowledgment to children	-.51	.15	-.06	-.05	.17	-.22	.02	.07	.07	.28	-.26	.17	.01	.26	1.00	.42	.23	.25	.13	-.02	-.20	.30	.21	.16	-.06	-.16
290, V420	Adults attentive to small group	-.35	.38	.09	-.21	.08	.08	-.32	-.28	.01	-.15	-.18	.03	.05	.05	.42	1.00	-.05	-.00	.03	-.31	-.06	.04	.53	.22	-.17	-.15
291, V421	Adults attentive to child	-.23	.62	-.28	.27	-.22	.17	.31	.32	.64	.40	.38	.11	-.25	.24	.23	-.05	1.00	.63	.16	.23	-.23	.45	-.06	.30	.33	.25
296, V438	Adult focus one child	-.17	.27	.16	.22	.05	-.34	.26	.26	.70	.37	.21	.78	.32	.74	.25	-.00	.63	1.00	.32	.11	.04	.65	.11	.39	.41	.13
300, V444	Adult movement	-.24	-.10	.18	.43	.10	.13	-.01	-.11	.26	.23	-.19	.12	.32	.22	.13	.03	.16	.32	1.00	.01	.09	.52	.16	.32	.36	-.30
307, V452	Adult open to children	.14	-.06	.19	-.04	-.29	.12	.12	-.12	-.11	.51	.26	-.04	-.04	-.04	-.02	-.31	.23	.11	.01	1.00	.09	.14	-.11	-.22	-.05	.20
311, V456	All child task comments	.26	.01	-.02	-.40	-.08	.19	.08	-.09	.18	.13	.04	.36	.03	.20	-.20	-.06	-.23	.04	.09	.09	1.00	-.09	.10	.41	.30	.38
312, V457	Adult positive corrective feedback	-.42	.30	.12	.04	-.02	-.24	-.07	.05	.39	.46	.14	.40	.13	.32	.30	.04	.45	.65	.52	.14	-.09	1.00	.21	.22	-.03	-.20
314, V460	All child positive affect	-.40	.39	.02	-.05	-.17	.09	-.30	-.09	-.03	.14	-.02	.15	-.02	-.04	.21	.53	-.06	.11	.16	-.11	.10	.21	1.00	.44	-.02	-.29
367, V516	Social interaction children	-.26	.48	-.33	.06	-.12	.17	-.06	-.00	.32	.21	.04	.44	-.03	.31	.16	.22	.30	.39	.32	-.22	.41	.22	.44	1.00	.71	-.03
408, V574	Child movement	.05	.09	-.13	.44	-.01	.37	.29	.19	.53	.28	.08	.40	.15	.35	-.06	-.17	.33	.41	.36	-.05	.30	-.03	-.02	.71	1.00	.14
430, V599	Child self instruction, nonacademic	.36	.23	-.32	-.09	-.07	.17	.33	-.04	.03	.20	.23	.11	-.43	.10	-.16	-.15	.25	.13	-.30	.20	.38	-.20	-.29	-.03	.14	1.00

Appendix O-2

PEARSON CORRELATION OF SPONSOR CRITICAL VARIABLES USED IN IMPLEMENTATION SCORES--UNIVERSITY OF ARIZONA
FIRST GRADE

FIRST GRADE		V019 V24	V020 V25	V057 V65	V058 V66	V059 V67	V062 V70	V075 V83	V078 V86	V080 V88	V086 V94	V106 V114	V222 V344	V228 V350	V268 V398	V291 V421	V307 V452	V309 V454	V311 V456	V314 V460	V430 V599
VAR019, V24	Child selection	1.00	-.22	-.30	-.16	-.47	.47	.43	-.06	.09	.01	.28	.29	.51	.17	-.26	.32	-.18	.04	-.16	-.28
020, V25	Games, toys, play equipment	-.22	1.00	.08	.20	-.34	.11	.43	-.55	.53	-.47	.35	.49	.19	-.26	.11	.08	.47	.49	.37	-.28
057, V65	Guessing games, table games, puzzles	-.30	.08	1.00	-.21	.21	-.22	-.28	.07	-.12	.03	-.23	-.21	-.30	-.07	.28	-.13	.08	-.15	-.04	.46
058, V66	Numbers, math	-.16	.20	-.21	1.00	-.09	-.14	.26	.28	-.10	.12	.44	.12	-.24	-.08	.43	.02	.49	.24	.39	-.25
059, V67	Reading, language	-.47	-.34	.21	-.09	1.00	-.44	-.85	.35	-.31	.00	-.25	-.49	-.44	.05	.29	-.33	-.33	-.54	-.09	.46
062, V70	Sewing, cooking, pounding	.47	.11	.22	-.14	-.44	1.00	.42	-.18	.42	.12	.02	.22	.43	.13	-.17	-.07	-.19	.40	-.09	-.21
075, V83	Wide variety of activities, one day	.43	.43	-.28	.25	-.85	.42	1.00	-.27	.25	-.01	.57	.59	.56	.21	-.13	.27	.28	.62	.35	-.32
078, V86	Teacher with one child	-.06	-.54	.07	.28	.35	-.18	-.27	1.00	-.71	.56	.01	-.16	-.10	.06	.32	-.06	.34	.49	-.21	.36
080, V88	Teacher with small group	.09	.52	-.12	-.10	-.31	.42	.25	-.71	1.00	-.21	.14	.25	.29	.05	.06	.20	.16	.50	.22	-.56
086, V94	Aide with small group	.01	-.47	.03	.12	.00	.12	.01	.56	.21	1.00	-.27	.31	.03	.17	.33	-.14	-.24	-.11	-.33	.08
106, V114	One child without adult	.28	.36	-.23	.43	-.25	.02	.57	.01	.14	-.27	1.00	.64	.37	.33	.16	.43	.17	.28	.69	-.25
222, V344	Child interaction with adult, verbal	.24	.49	-.21	.12	-.48	.22	.59	-.16	.25	-.31	.64	1.00	.48	.07	-.09	.37	.29	.44	.26	-.44
228, V350	Child questions to adult	.51	.19	-.30	-.24	-.44	.43	.56	-.10	.29	.03	.37	.48	1.00	.08	-.10	.07	-.29	.37	-.04	-.18
268, V398	All adult praise to children	.17	-.26	-.07	-.07	-.04	.13	.21	.06	.05	.17	.33	.07	.08	1.00	-.19	.47	-.32	-.03	.48	-.08
291, V421	Adults attentive to child	-.26	.11	.28	.42	.29	-.17	-.13	.32	.06	.33	.16	.09	-.10	.19	1.00	-.10	.13	.18	-.03	.20
307, V452	Adult open to children	.32	.08	-.13	.02	-.33	.07	.27	-.06	.20	-.14	.43	.37	.07	.47	-.10	1.00	.06	-.25	.22	-.35
309, V454	Child extended response to questions	-.18	.47	.08	.49	-.33	-.19	.28	-.34	.16	-.24	.17	.29	-.29	-.32	.13	.06	1.00	.47	.17	.43
311, V456	All child task comments	.04	.49	-.15	.24	-.54	.40	.62	.49	.50	-.11	.28	.44	.37	-.03	.18	-.25	.47	1.00	.35	-.39
314, V460	All child positive affect	-.16	.37	-.04	.39	-.09	-.09	.35	-.21	.22	-.33	.69	.26	.04	.48	-.03	.22	.17	.35	1.00	-.14
430, V599	Child self instruction, nonacademic	.28	-.28	.46	.25	.46	-.21	-.32	.36	-.56	.08	-.25	-.44	-.18	-.08	.20	.35	-.43	.39	-.14	1.00

THIRD GRADE		V019 V24	V020 V25	V057 V65	V058 V66	V059 V67	V062 V70	V075 V83	V078 V86	V080 V88	V086 V94	V106 V114	V222 V334	V228 V350	V268 V398	V291 V421	V307 V452	V309 V454	V311 V456	V314 V460	V430 V599
VAR019, V24	Child selection	1.00	.49	-.03	-.28	-.46	.35	.47	.28	-.04	-.16	.60	.32	.25	.47	.26	.08	.36	.52	.36	-.38
020, V25	Games, toys, play equipment	.49	1.00	-.13	-.08	-.48	.41	.26	.03	.11	.22	.17	.08	-.18	.29	.30	-.01	.32	.65	.38	-.15
057, V65	Guessing games, table games, puzzles	-.03	-.13	1.00	-.33	-.12	.08	.26	.09	-.09	-.21	.21	.23	.31	.23	-.19	.39	-.04	-.00	.10	.09
058, V66	Numbers, math	-.28	-.08	-.33	1.00	.06	-.30	-.56	-.14	.07	.19	-.27	-.14	-.47	-.37	-.08	-.19	.14	-.23	-.31	-.31
059, V67	Reading, language	-.46	-.46	-.12	.06	1.00	-.27	-.57	-.08	.05	.19	-.10	-.14	.29	-.10	-.24	-.42	-.41	-.45	-.43	.52
062, V70	Sewing, cooking, pounding	.35	.41	.08	-.30	-.27	1.00	.21	.02	.21	.31	.10	.08	.14	.39	-.14	.17	-.11	.14	.26	-.10
075, V83	Wide variety of activities, one day	.47	.26	.26	-.56	-.57	.21	1.00	.40	-.32	-.32	.31	.30	.20	.15	.46	.22	.21	.48	.36	-.15
078, V86	Teacher with one child	.28	.02	.09	-.14	-.08	.02	.40	1.00	-.30	.12	.25	.28	.05	.39	.44	-.18	-.00	.08	.21	.16
080, V88	Teacher with small group	-.04	.11	-.09	.07	.05	.21	-.32	.30	1.00	.53	.10	.10	.23	.14	-.08	.24	-.13	.14	.01	.13
086, V94	Aide with small group	-.16	.22	-.21	.19	.19	.31	-.32	.12	.53	1.00	-.01	.13	.12	.30	-.02	-.25	-.35	.01	.06	.37
106, V114	One child without adult	.60	.17	.21	-.27	-.10	.10	.31	.25	.10	-.01	1.00	.59	.54	.26	.17	-.03	.13	.35	.15	-.21
222, V334	Child interaction with adult, verbal	.32	.08	.23	-.14	-.14	.08	.30	.28	.10	.13	.59	1.00	.58	.45	.21	.20	.13	.28	.33	-.18
228, V350	Child questions to adult	.25	-.18	.31	-.47	.29	.14	.20	.05	.23	.12	.54	.58	1.00	.50	-.10	.06	-.27	-.01	-.08	.12
268, V398	All adult praise to children	.47	.29	.23	-.37	-.10	.39	.15	.39	.14	.30	.26	.45	.50	1.00	-.02	.18	-.20	.07	.31	.06
291, V421	Adults attentive to child	.26	.30	-.19	-.08	-.34	-.14	.46	.44	-.08	-.02	.17	.21	-.10	-.02	1.00	-.08	.33	.65	.18	-.00
307, V452	Adult open to children	.08	-.01	.39	-.19	-.42	.17	.22	-.18	.24	-.25	-.03	.20	.06	.18	-.08	1.00	.31	.09	.31	-.26
309, V454	Child extended response to questions	.36	.32	-.38	.14	-.40	-.11	.21	-.00	-.13	-.35	.13	.13	-.27	-.20	.33	.31	1.00	.46	.14	-.29
311, V456	All child task comments	.52	.65	-.00	-.23	-.45	.14	.48	.08	.14	.01	.35	.28	-.01	.07	.65	.09	.46	1.00	.33	.01
314, V460	All child positive affect	.36	.38	-.10	-.31	-.43	.26	.36	.21	.01	.06	.15	.33	-.08	.31	.18	.31	.14	.33	1.00	-.14
430, V599	Child self instruction, nonacademic	-.38	-.15	.09	-.31	.52	-.10	-.15	.16	.13	.37	-.21	-.18	.12	-.06	-.00	-.26	-.29	.001	-.14	1.00

Appendix O-3

PEARSON CORRELATION OF SPONSOR CRITICAL VARIABLES USED IN IMPLEMENTATION SCORES--BANK STREET

FIRST GRADE

		V019 V24	V020 V25	V058 V66	V059 V67	V066 V74	V075 V83	V078 V86	V079 V87	V080 V88	V084 V92	V106 V114	V108 V116	V195 V239	V221 V343	V222 V344	V228 V350	V250 V372	V264 V394	V291 V421	V296 V438	V307 V452	V309 V454	V361 V510	V364 V513	V366 V515	V367 V516
VAR019, V24	Child selection	-1.00	-.62	-.44	.06	-.23	.09	-.34	.01	.33	-.10	.05	.21	-.04	.06	.01	-.41	.36	-.50	-.44	-.16	.32	.44	.37	-.11	99.00	.57
020, V25	Games, toys, play equipment	-.62	1.00	.04	-.34	.22	.07	.57	.10	-.25	.43	.23	-.04	.05	.27	-.05	.45	-.19	.08	.37	.08	-.06	-.22	-.19	-.08	99.00	.59
058, V66	Numbers, math	-.44	.04	1.00	.26	-.10	-.25	.13	.11	.28	-.36	-.46	-.59	.28	-.14	.39	.11	.16	.61	.09	.33	-.19	.02	.30	.03	99.00	.10
059, V67	Reading, language	.06	-.34	.26	1.00	-.37	-.61	-.10	-.09	.51	.19	-.75	.01	.22	-.22	.69	-.39	-.07	.51	-.06	.54	-.33	.07	.05	.33	99.00	.38
066, V74	Practical skills	-.23	.22	-.10	-.37	1.00	.39	.26	.09	-.56	.45	.39	-.03	.28	-.16	-.38	.18	.10	-.27	.03	-.30	.16	.02	-.07	-.28	99.00	-.11
075, V83	Wide variety of activities, one day	.09	.07	-.25	-.61	.39	1.00	-.07	.10	-.45	.23	.70	-.19	-.33	.06	-.51	.29	-.03	-.47	.03	-.41	.18	.14	.26	-.17	99.00	-.22
078, V86	Teacher with one child	-.54	.57	.13	-.10	.26	-.07	1.00	-.26	-.30	.23	.01	.16	.26	.20	.16	.34	-.18	.17	.56	.35	-.16	-.27	-.02	.05	99.00	-.48
079, V87	Teacher with two children	.01	.10	.11	-.09	-.09	.10	-.26	1.00	.21	.14	.18	-.10	-.19	-.12	.00	-.00	-.09	-.11	-.03	.03	.15	.18	.06	.05	99.00	.04
080, V88	Teacher with small group	.33	-.25	.28	.51	-.56	-.45	-.30	.21	1.00	-.23	-.39	.02	.33	.15	.60	-.19	.33	.31	-.29	.35	-.00	.22	.10	.13	99.00	-.24
084, V92	Aide with one child	-.10	.43	-.36	-.19	.45	.23	.23	.14	-.23	1.00	.25	.27	-.05	.21	.01	.21	-.12	-.17	-.20	-.15	-.05	-.12	-.17	-.44	99.00	-.17
106, V114	One child without adult	.05	.23	-.46	-.75	.39	.71	.01	.18	-.39	.25	1.00	.01	.10	.24	-.41	.32	-.17	-.41	.25	-.21	.53	-.07	.43	-.26	99.00	.40
108, V116	Small group **without adults**	.22	.04	-.59	.00	.03	.19	.16	-.10	.02	.27	.01	1.00	.10	.15	-.02	.04	-.04	-.27	-.10	-.07	-.23	-.25	-.07	.02	99.00	.13
195, V239	Math or **science equipment**	-.04	.05	.28	.22	-.27	-.33	.26	-.19	.33	-.05	-.10	.10	1.00	.04	.56	-.19	-.23	.49	.10	.39	.36	-.37	.30	.09	99.00	-.05
221 V343	Child to adult, verbal	.06	.27	-.14	-.22	-.16	.06	.20	-.12	.15	.21	.24	.15	-.04	1.00	.07	.75	.46	-.24	.47	.24	-.11	.24	.11	-.40	99.00	-.17
222, V344	Child interaction with adult, verbal	.01	.05	.39	.69	-.38	-.51	.16	.00	.60	.01	-.41	-.02	.56	.07	1.00	-.17	-.05	.64	.10	.85	-.11	-.03	.01	.09	99.00	.03
228, V350	Child questions to adult	-.41	.45	.11	-.39	.18	.29	.34	.00	-.19	.21	.31	.03	-.19	.76	-.17	1.00	.36	-.12	.57	.11	-.32	-.05	-.08	-.26	99.00	.38
250, V372	Child information to group	.36	-.19	.16	-.07	-.10	-.03	-.18	-.09	.33	-.12	-.17	-.04	-.23	.46	-.05	.36	1.00	-.32	-.11	-.01	-.23	.27	.02	-.16	99.00	.20
264, V394	All adult acknowledgment to children	-.50	.08	.61	.51	-.27	-.47	.17	-.11	.31	-.17	.40	-.27	.49	-.24	.64	-.12	-.32	1.00	.11	.53	-.14	-.46	-.19	.29	99.00	-.22
291, V421	**Adults attentive to children**	-.44	.37	.09	-.06	.03	.03	.56	-.03	-.29	-.20	.25	-.10	.10	.47	.10	.57	-.11	.11	1.00	.55	-.00	-.11	.32	.03	99.00	-.32
296, V438	Adult focus one child	-.16	.09	.33	.54	-.30	-.41	.35	.04	.35	-.15	-.21	-.07	.39	.24	.85	.11	-.01	.53	.55	1.00	-.14	-.09	.18	.21	99.00	-.12
307, V452	Adult open to children	.32	.06	-.19	-.33	.16	.18	-.16	.15	-.00	-.05	.53	.23	.36	-.11	-.11	-.32	-.23	-.14	-.00	-.14	1.00	.03	.67	-.28	99.00	.14
309, V454	Child extended response to questions	.44	-.22	.02	.07	.02	.14	-.27	.18	.22	-.12	.07	-.25	-.37	.24	-.03	-.05	.27	-.46	-.11	-.09	.03	1.00	-.08	-.28	99.00	.34
361, V510	Child self instruction, objects	.37	.19	-.30	-.05	-.07	.26	-.02	.06	.10	-.17	.43	-.07	.30	.11	.01	-.08	.02	-.19	.32	.18	.67	-.08	1.00	.06	99.00	.20
364, V513	Child task persistence	-.11	.08	.03	.33	-.28	-.17	.05	.05	.13	-.44	-.26	.02	-.09	-.40	.09	-.26	-.16	.29	.03	.21	-.28	-.28	.06	1.00	99.00	-.12
366, V515	Small group concrete objects	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00
367, V516	Social interaction, children	.57	-.59	-.10	.38	-.11	-.22	-.48	.04	.24	-.17	-.40	.13	-.05	-.17	.03	.38	.20	-.22	-.32	-.12	.14	.34	.20	-.12	99.00	1.00

THIRD GRADE

		V019 V24	V020 V25	V058 V66	V059 V67	V066 V74	V075 V83	V078 V86	V079 V87	V080 V88	V084 V92	V106 V114	V108 V116	V195 V239	V221 V343	V222 V344	V228 V350	V250 V372	V264 V394	V291 V421	V296 V438	V307 V452	V309 V454	V361 V510	V364 V513	V366 V515	V367 V516
VAR019, V24	Child selection	1.00	.08	-.08	.27	.13	.21	.31	.13	-.22	.13	.27	-.39	.34	.37	.44	.21	-.07	-.41	-.32	-.01	.12	.28	.07	-.11	99.00	-.01
020, V25	Games, toys, play equipment	.08	1.00	-.03	-.54	.79	.20	.17	.48	-.30	.47	.52	-.39	.22	.80	-.32	.65	.03	-.07	-.01	-.32	-.48	.11	.38	-.11	99.00	-.28
058, V66	Numbers, math	-.08	-.03	1.00	.24	-.13	-.54	-.01	-.06	.47	-.01	-.06	.44	.23	-.07	.25	-.28	.06	.30	.31	.29	.08	.08	.10	.53	99.00	-.29
059, V67	Reading, language	.27	-.53	.24	1.00	.14	-.45	-.00	-.17	.25	-.40	-.31	.20	-.05	-.28	.46	-.43	-.12	-.10	.06	.29	.18	.32	.06	.45	99.00	.16
066, V74	Practical skills	.13	.08	-.13	.14	1.00	-.28	-.22	-.23	-.12	-.15	-.09	-.21	-.04	.15	-.19	.07	-.13	-.21	-.23	-.41	-.19	-.08	.06	-.03	99.00	-.12
075, V83	Wide variety of activities, one day	.21	.20	-.54	-.45	-.28	1.00	.10	.03	-.22	.12	.18	-.52	.03	.26	-.18	.55	.14	-.33	-.43	-.40	.03	-.16	-.11	-.67	99.00	.52
078, V86	Teacher with one child	.31	.17	-.01	-.00	-.22	.10	1.00	.09	-.01	.44	.65	.05	.35	.23	.58	.01	-.40	-.00	.04	.47	.08	.03	.35	.37	99.00	-.20
079, V87	Teacher with two children	.13	.48	-.08	-.17	-.23	.03	.09	1.00	-.23	.30	.33	-.04	.09	.26	.05	.22	.15	-.05	-.09	-.01	-.07	.01	.45	.00	99.00	-.28
080, V88	Teacher with small group	-.22	-.30	.47	.25	-.12	-.22	-.01	-.23	1.00	-.39	-.26	.42	.24	-.31	.03	-.51	-.43	.35	.48	.41	.32	-.04	-.08	.52	99.00	-.23
084, V92	Aide with one child	.13	.47	-.01	-.40	-.15	.12	.44	.30	-.39	1.00	.65	.00	.14	.21	.21	.08	-.31	.09	-.19	.05	-.02	-.20	.08	-.02	99.00	-.32
106, V114	One child without adult	.27	.52	-.06	.31	-.09	.18	.65	.33	-.26	.65	1.00	-.03	.17	.42	.22	.31	-.24	-.18	-.10	.15	-.25	-.27	.02	-.14	99.00	-.15
108, V116	Small group without adults	-.39	-.39	.44	.20	-.21	-.52	.05	.04	.42	.00	-.04	1.00	-.18	-.58	.21	.66	-.25	.47	.40	.54	.29	-.28	-.07	.48	99.00	.22
195, V239	Math or science equipment	.34	.22	.23	-.05	-.04	.03	.35	.09	.24	.14	.17	-.18	1.00	.28	.30	.16	-.25	.24	-.24	.00	-.29	.06	.29	.34	99.00	-.11
221, V343	Child to adult, verbal	.37	.80	.07	-.28	.15	.26	.23	.26	-.31	.21	.42	-.58	.28	1.00	.03	.82	.13	-.43	-.15	-.31	-.47	.46	.45	-.10	99.00	-.06
222, V344	Child interaction with adult, verbal	.44	-.32	.25	.46	-.19	-.18	.58	.05	.03	.21	.22	.21	.30	-.03	1.00	-.20	-.22	-.23	-.16	.54	.28	.20	.19	.38	99.00	-.01
228, V350	Child questions to adult	.21	.65	.28	-.43	.07	.55	.01	.22	-.51	.08	.31	-.66	.16	.82	-.20	1.00	.45	-.64	-.49	-.63	-.58	.18	.28	.49	99.00	.40
250, V372	Child information to group	-.07	-.03	-.06	-.12	-.13	.14	-.40	.15	-.43	-.31	-.24	-.25	-.25	.13	-.22	.45	1.00	-.44	-.26	-.42	-.25	.26	.09	-.36	99.00	.38
264, V394	All adult acknowledgment to children	-.41	-.07	.30	-.10	-.21	-.33	-.00	-.05	.35	.09	-.18	.47	-.24	.43	-.23	-.64	-.44	1.00	.73	.47	.37	-.20	-.10	.38	99.00	.58
291, V421	Adults attentive to child	-.32	-.02	.31	.06	-.23	-.43	.04	-.09	.48	-.19	-.10	.40	-.24	-.15	-.16	-.49	-.26	.73	1.00	.69	.19	.22	-.11	.41	99.00	-.60
296, V438	Adult focus one child	-.01	-.32	.29	.29	-.41	-.40	.47	-.01	.41	.05	.15	.54	.00	-.31	.54	-.63	-.42	.47	.69	1.00	.37	.12	-.09	.50	99.00	-.47
307, V452	Adult open to children	.12	-.48	.08	.18	-.19	.03	.08	-.07	.32	-.02	-.25	.29	.29	.47	.28	.58	-.25	.37	.19	.37	1.00	.05	-.22	.12	99.00	-.18
309, V454	Child extended response to questions	.28	.11	.08	.32	-.08	-.16	.03	.01	-.04	-.20	-.27	.28	.06	.46	.20	.18	.26	-.20	.22	.12	.05	1.00	.38	.36	99.00	-.13
361, V510	Child self instruction, objects	.07	.38	.10	.06	.06	-.11	.35	.45	-.08	.08	.02	-.07	.29	.45	.19	.28	.09	-.10	-.11	-.09	-.22	.38	1.00	.54	99.00	-.23
364, V513	Child task persistence	-.11	-.11	.53	.45	-.03	-.07	.37	.00	.52	-.02	-.14	.48	.34	-.10	.38	-.49	-.36	.38	.41	.50	.12	.36	.54	1.00	99.00	-.49
366, V515	Small group concrete objects	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00
367, V516	Social interaction, children	-.01	-.28	-.29	.16	-.12	.52	-.20	-.28	-.23	-.32	-.15	-.22	-.11	-.06	-.01	.40	.38	-.58	-.60	-.47	-.18	-.13	-.23	-.49	99.00	1.00

Appendix O-4

PEARSON CORRELATIONS OF SPONSOR CRITICAL VARIABLES USED IN IMPLEMENTATION SCORES--UNIVERSITY OF OREGON

FIRST GRADE	V058 V66	V059 V67	V080 V88	V086 V94	V196 V240	V222 V344	V241 V363	V254 V376	V264 V394	V268 V398	V282 V412	V290 V420	V294 V435	V298 V440	V306 V451	V312 V457	V360 V509
VAR058, V66 Numbers, math	1.00	-.22	-.56	-.42	.09	-.29	.37	-.00	.24	-.36	.00	-.35	.11	-.42	.14	.25	.49
059, V67 Reading, language	-.22	1.00	.32	.08	-.11	.35	.15	.10	.59	.02	.63	.31	.50	.20	.07	.53	.45
080, V88 Teacher with small group	-.56	.32	1.00	.75	.40	.35	-.31	.32	-.07	.57	.33	.51	.04	.64	-.15	.08	.28
086, V94 Aide with small group	-.42	.08	.75	1.00	-.57	.24	-.35	-.39	-.07	.72	.32	.61	-.14	.75	-.31	-.14	.22
196, V240 Texts, workbooks	.09	-.11	-.40	-.57	1.00	-.40	.20	.59	-.26	-.66	-.58	-.31	.20	-.16	.38	-.18	-.19
222, V344 Child interaction with adult, verbal	-.29	.35	.35	.24	-.40	1.00	-.68	.16	.29	.29	.37	.22	-.13	.18	-.47	.43	.59
241, V363 Child group to adult, academic	.37	.15	-.31	-.35	.20	-.68	1.00	-.09	.34	-.37	.16	-.27	.50	-.21	.73	-.01	-.50
254, V376 Adult instructs group	-.01	.10	-.32	-.39	.59	.16	-.09	1.00	.09	-.49	-.22	.05	.29	.10	.12	.30	.40
264, V394 All adult acknowledgment to children	.24	.59	-.07	-.07	-.26	.29	.34	.09	1.00	-.13	.77	.12	.50	.04	.11	.46	.20
268, V398 All adult praise to children	-.36	.02	.57	.72	-.66	.29	-.37	-.49	-.13	1.00	.45	.52	-.16	.31	-.48	-.09	.18
282, V412 Adult feedback to academic questions	.00	.63	.33	.32	-.58	.37	.16	-.22	.77	.45	1.00	.42	.53	.24	.03	.49	.25
290, V420 Adults attentive to small group	-.35	.31	.51	.61	-.31	.22	-.27	.05	.12	.52	.42	1.00	.25	.73	-.29	.15	.63
294, V435 Total academic verbal response	.11	.50	.04	-.14	.21	-.13	.50	.29	.50	-.16	.53	.25	1.00	.22	.61	.53	.10
298, V440 Adult focus small group	-.42	.20	.64	.75	-.16	.18	-.21	.10	.04	.31	.24	.73	.22	1.00	.04	.08	.39
306, V451 Adult academic to children	.14	.07	-.15	-.31	.38	-.47	.73	.12	.11	-.48	-.03	-.29	.61	.04	1.00	.22	-.39
312, V457 Adult positive corrective feedback	-.25	.53	.08	-.14	-.18	.43	.01	.30	.46	-.09	.49	.15	.53	.08	.22	1.00	.55
360, V509 Child self instruction, academic	-.49	.45	.28	.22	-.19	.59	-.50	.40	.20	.18	.25	.63	.10	.39	-.39	.55	1.00

THIRD GRADE	V058 V66	V059 V67	V080 V88	V086 V94	V196 V240	V222 V344	V241 V363	V254 V376	V264 V394	V268 V398	V282 V412	V290 V420	V294 V435	V298 V440	V306 V451	V312 V457	V360 V509
VAR058, V66 Numbers, math	1.00	-.19	.19	.29	-.08	-.27	.37	.73	.40	-.10	.25	.21	.65	.41	.06	.06	.04
059, V67 Reading, language	-.19	1.00	.29	.34	.26	.20	.25	-.37	0.43	.39	.24	.43	.26	.31	.44	.07	-.02
080, V88 Teacher with small group	.19	.29	1.00	.66	.39	-.05	.55	-.12	.00	.30	.50	.70	.24	.80	.25	.04	.03
086, V94 Aide with small group	.29	.34	.66	1.00	-.05	-.25	.29	.29	.36	-.06	.41	.51	.19	.79	.09	-.04	.11
196, V240 Texts, workbooks	-.08	.26	.39	-.05	1.00	.22	.60	-.61	-.45	.29	.10	.53	.20	.25	.62	-.07	-.24
222, V344 Child interaction with adult, verbal	-.27	.20	-.05	-.25	.22	1.00	-.23	-.56	-.34	.67	.20	-.41	.23	-.44	.43	.63	-.23
241, V363 Child group to adult academic	.37	.25	.55	.29	.60	-.23	1.00	-.08	-.25	-.05	.01	.83	.55	.62	.67	.00	-.32
254, V376 Adult instructs group	.73	-.37	-.12	.29	-.61	-.56	-.08	1.00	.67	-.43	.07	-.09	.23	.25	-.43	-.15	.12
264, V394 All adult acknowledgment to children	.40	-.43	.00	.36	-.45	-.34	-.25	.67	1.00	-.17	.46	-.13	-.10	.27	-.56	-.17	.20
268, V398 All adult praise to children	-.10	.39	.30	-.06	.29	.67	-.05	-.43	-.17	1.00	.64	-.02	.26	-.04	.21	.43	-.13
282, V412 Adult feedback to academic questions	.25	.24	.50	.41	.10	.20	.01	.07	.46	.64	1.00	.16	.20	.45	.03	.00	.09
290, V420 Adults attentive to small group	.21	.43	.70	.51	.53	-.41	.83	-.09	-.13	-.02	.16	1.00	.32	.83	.38	-.13	.00
294, V435 Total academic verbal response	.65	.26	.24	.19	.20	.23	.55	.23	-.10	.26	.20	.32	1.00	.30	.64	.55	-.28
298, V440 Adult focus small group	.41	.31	.80	.79	.25	-.44	.62	.25	.27	-.04	.45	.83	.30	1.00	.16	-.18	.19
306, V451 Adult academic to children	.06	.44	.25	.09	.62	.43	.67	-.43	-.56	.21	-.03	.38	.64	.16	1.00	.34	-.41
312, V457 All child positive affect	.06	.07	.04	-.04	-.07	.63	.00	-.15	-.17	.43	.00	-.13	.55	-.18	.34	1.00	-.19
360, V509 Child self instruction, academic	.04	-.02	.03	.11	-.24	-.23	-.32	.12	.20	-.13	.09	.00	-.28	.19	-.41	-.19	1.00

Appendix 0-5

PEARSON CORRELATION OF SPONSOR CRITICAL VARIABLES USED IN IMPLEMENTATION SCORES--UNIVERSITY OF KANSAS

FIRST GRADE		V034 V39	V057 V65	V058 V66	V059 V67	V080 V88	V086 V94	V196 V240	V222 V344	V264 V394	V268 V398	V282 V412	V291 V421	V296 V438	V306 V451	V312 V457	V323 V469	V364 V513
VAR034, V39	General equipment present	1.00	.31	.14	-.11	-.34	-.54	-.18	-.21	.03	.08	-.17	.58	.26	-.15	.13	.24	.10
057, V65	Guessing games, table games, puzzles	.31	1.00	.17	.33	-.39	-.39	-.33	-.31	-.16	.26	-.03	-.06	-.35	-.17	-.23	.17	.24
058, V66	Practical skills	-.14	.17	1.00	.06	.02	.13	.03	.22	.53	-.10	.31	-.13	.11	.46	.26	-.21	-.20
059, V67	Reading, language	-.11	-.33	-.06	1.00	.75	.23	.64	.66	.48	-.09	.29	.16	.66	.51	.53	-.08	.23
080, V88	Teacher with small group	-.34	-.39	.02	.75	1.00	.70	.57	.53	.53	-.18	.36	.00	.60	.52	.59	-.23	-.11
086, V94	Aide with small group	-.54	-.39	.13	.23	.70	1.00	.45	.58	.33	-.37	.19	-.42	.23	.35	.41	-.48	-.27
196, V240	Texts, workbooks	-.18	-.33	.03	.63	.57	.45	1.00	.82	.56	.43	-.00	-.18	.63	.25	.65	-.45	-.07
222, V344	Child interaction with adult, verbal	-.21	-.31	.22	.66	.71	.58	.82	1.00	.70	-.51	.24	-.19	.75	.53	.83	-.52	.13
264, V394	All adult acknowledgment to children	.03	-.16	.53	.48	.53	.33	.56	.70	1.00	-.37	.43	.10	.66	.52	.63	-.38	-.29
268, V398	All adult praise to children	.08	.26	-.10	-.09	-.18	-.37	-.43	-.51	-.37	1.00	.51	-.03	-.48	.18	-.51	.95	-.11
282, V412	Adult feedback to academic questions	-.17	-.03	.31	.29	.36	.19	-.00	.24	.43	.51	1.00	-.21	.02	.85	.11	.40	-.20
291, V421	Adults attentive to child	.58	-.06	-.13	.16	.00	-.42	-.18	-.19	.10	-.03	-.21	1.00	.49	-.27	.14	.14	-.01
296, V438	Adult focus, one child	.26	-.35	.11	.66	.60	.23	.63	.75	.66	-.48	.02	.49	1.00	.26	.85	-.38	.07
306, V451	Adult academic to children	-.15	-.17	.46	.51	.52	.35	.25	.53	.52	.18	.85	-.27	.26	1.00	.42	.07	-.00
312, V457	Adult positive corrective feedback	.13	-.23	.26	.53	.60	.41	.65	.83	.63	-.51	.11	.14	.84	.42	1.00	-.52	.08
323, V469	Adult reinforce with tokens	.24	.17	-.21	-.08	-.23	-.48	-.45	-.52	-.38	.95	.40	.11	-.38	.07	-.52	1.00	-.10
364, V513	Child task persistence	.10	.24	-.20	.23	-.11	-.27	.07	.13	-.29	-.11	-.20	.01	.07	-.00	.08	-.10	1.00

THIRD GRADE		V034 V39	V057 V65	V058 V66	V059 V67	V080 V88	V086 V94	V196 V240	V222 V344	V264 V394	V268 V398	V282 V412	V291 V421	V296 V438	V306 V451	V312 V457	V323 V469	V364 V513
VAR034, V39	General equipment present	1.00	.38	-.07	.15	.09	.24	-.07	.11	.42	.35	.56	-.25	-.04	.46	.12	.34	-.64
057, V65	Guessing games, table games, puzzles	.38	1.00	.24	-.53	-.28	-.28	.44	-.23	-.45	.26	-.27	-.01	-.46	-.08	.02	-.18	-.48
058, V66	Numbers, math	.07	-.24	1.00	-.15	-.01	-.21	.55	-.23	.26	-.01	-.08	-.08	-.20	-.44	.02	.12	.47
059, V67	Reading, language	.15	-.53	-.15	1.00	.20	.33	.34	-.01	.38	.16	.67	-.15	.06	.43	-.12	.25	.20
080, V88	Teacher with small group	.09	-.28	-.01	.20	1.00	.79	.13	.43	.58	-.25	.49	-.31	.28	.38	-.17	-.43	.19
086, V94	Aide with small group	.24	-.28	-.21	.33	.79	1.00	.07	.52	.64	-.21	.65	-.30	.34	.50	.07	-.27	-.00
196, V240	Texts, workbooks	-.07	-.44	.55	.34	.13	.07	1.00	.01	.47	.08	.38	-.46	-.11	-.14	-.08	.22	.26
222, V344	Child interaction with adult, verbal	.11	-.23	-.23	-.01	.43	.52	.01	1.00	.41	.20	.45	-.47	.59	.64	.34	-.13	-.49
264, V394	All adult acknowledgment to children	.42	-.45	.26	.38	.58	.64	.47	.41	1.00	-.21	.73	-.40	.27	.37	.32	-.20	.09
268, V398	All adult praise to children	.35	.26	-.01	.16	-.25	-.21	.08	.20	-.21	1.00	.32	-.38	-.12	.35	-.09	.85	-.54
282, V412	Adult feedback to academic questions	.56	-.27	-.08	.67	.49	.65	.38	.45	.73	.32	1.00	-.63	.12	.75	.11	.30	-.17
291, V421	Adults attentive to child	-.25	-.01	-.08	-.15	-.31	-.30	-.46	-.47	-.40	-.38	-.63	1.00	.22	-.48	-.09	-.30	.22
296, V438	Adult focus, one child	-.04	-.46	-.20	.06	.38	.34	-.11	.59	.27	-.12	.12	.22	1.00	.31	-.12	-.40	-.21
306, V451	Adult academic to children	.46	-.08	-.44	.43	.38	.50	-.14	.64	.37	.35	.75	-.48	.31	1.00	.19	.16	-.40
312, V457	Adult positive corrective feedback	.12	.02	.02	-.12	-.17	.07	-.08	.34	.32	-.09	.11	-.09	-.12	.19	1.00	-.06	-.16
323, V469	Adult reinforce with tokens	.34	.18	.12	.25	-.43	-.27	.22	-.13	-.20	.85	.30	-.30	-.40	.16	-.06	1.00	-.37
364, V513	Child task persistence	-.69	-.48	.47	.20	.19	-.00	.26	-.49	.09	-.54	-.17	.22	-.21	-.40	-.16	-.37	1.00

Appendix O-6

PEARSON CORRELATION OF SPONSOR CRITICAL VARIABLES IN IMPLEMENTATION SCORES--HIGH SCOPE

FIRST GRADE	V019 V24	V020 V25	V057 V39	V058 V65	V059 V67	V062 V70	V063 V71	V075 V83	V078 V86	V080 V88	V086 V94	V195 V239	V222 V344	V228 V350	V250 V372	V263 V390	V264 V394	V290 V420	V291 V421	V296 V438	V298 V440	V307 V452	V308 V453	V311 V456	V361 V510	V364 V513	V365 V514	V366 V575	V430 V599
VAR019, V24 Child selection	1.00	.82	.15	-.05	-.36	.38	-.09	.26	-.16	.07	-.04	.06	.11	.17	-.24	.73	.72	.38	.45	.60	-.06	.07	.58	.14	-.53	-.05	.10	-.30	.44
020, V25 Games, toys, play equipment	.82	1.00	.19	.02	-.18	.25	-.09	.34	-.12	.06	.06	.23	-.06	.06	-.52	.50	.77	-.29	.51	.48	-.05	-.03	.53	.14	-.51	.05	.08	.08	.24
057, V39 Guessing games, table games, puzzles	.15	.19	1.00	-.29	-.44	-.16	-.30	.52	.29	-.29	-.48	.31	-.04	.26	-.13	.50	-.06	-.15	-.02	.01	-.33	-.12	-.01	.35	-.06	.27	-.14	.27	.28
058, V65 Numbers, math	-.05	.02	-.29	1.00	-.18	-.27	-.12	.41	-.36	.44	.36	.57	-.07	.08	.09	-.21	.35	.18	.18	.09	.20	-.16	.26	-.16	-.01	-.08	.00	.07	-.33
059, V67 Reading, language	-.36	-.18	-.44	-.18	1.00	-.07	-.09	-.50	-.27	.34	.41	-.35	-.35	-.46	.01	-.51	.01	.49	.13	-.26	.51	.00	.09	-.27	-.06	.10	.11	.11	-.21
062, V70 Sewing, cooking, pounding	.38	.25	-.16	-.27	.07	1.00	-.00	.32	.12	-.22	.18	-.53	.13	.01	-.27	.02	.06	-.04	.17	.22	-.06	.63	.05	-.09	.16	.16	.20	-.13	.26
063, V71 Blocks, trucks	-.09	-.09	-.30	-.12	-.09	-.00	1.00	.12	.25	-.12	.20	-.26	.13	-.09	-.15	-.09	-.12	-.26	-.04	-.01	-.06	-.07	-.47	-.41	.46	-.07	.01	.07	.32
075, V83 Wide variety of activities, one day	.26	.34	.52	-.41	-.50	.32	.11	1.00	.22	-.51	-.19	-.05	-.08	.09	-.16	.36	-.00	-.24	-.07	-.11	-.33	.27	-.17	.28	.05	.33	-.32	.35	.37
078, V86 Teachers with one child	-.16	-.12	.29	-.36	-.27	.12	.25	.22	1.00	-.47	-.41	-.19	.33	.14	-.27	-.11	-.40	-.39	.00	.22	-.46	.11	-.20	.07	.42	-.01	-.22	-.21	.12
080, V88 Teacher with small group	.07	.06	-.29	.44	.34	-.22	-.12	-.51	-.47	1.00	.70	.15	.26	-.13	.17	-.09	.55	.48	.21	-.03	.83	-.03	.29	-.29	-.18	.28	-.03	-.15	-.15
086, V94 Aide with small group	-.04	.06	-.48	.36	.41	.19	.20	-.19	-.41	.70	1.00	-.19	-.35	-.35	.00	-.35	.44	.53	.36	-.11	.77	.35	.10	-.42	.08	.50	0.26	.11	-.07
195, V239 Math or science equipment	.06	.23	.31	.57	-.35	-.53	-.26	-.05	-.19	.15	-.19	1.00	-.24	.07	.19	.24	.19	.02	-.06	-.10	-.06	.49	.31	.09	.07	-.09	.03	.41	-.13
222, V344 Child interaction with adult, verbal	.11	-.06	-.04	-.07	-.35	.13	.13	-.08	.33	-.26	-.35	-.24	1.00	.80	-.40	-.05	-.18	-.82	-.33	.66	-.64	-.04	.32	.51	.11	.29	.10	-.40	-.21
228, V350 Child questions to adult	.17	.06	.26	.08	-.46	.01	-.09	.09	.14	-.13	-.35	.07	.80	1.00	-.38	.07	.00	-.68	-.36	.47	-.54	-.23	.52	.60	.07	-.22	.04	-.12	-.16
250, V372 Child information to group	-.24	-.52	-.13	.09	.01	-.27	-.15	-.16	-.27	.17	.00	.19	-.40	-.38	1.00	.10	-.28	.46	-.18	-.49	.35	.06	-.22	-.28	.04	.03	-.12	-.10	-.01
263, V390 Adult task comments to children	.73	.50	.50	-.21	-.51	.02	-.10	.36	-.11	-.09	-.36	.24	-.05	.07	.10	1.00	.30	-.27	.10	.20	-.09	-.00	.18	.19	-.50	-.06	.16	-.19	.41
264, V394 All adult acknowledgment to children	.72	.77	-.06	.35	.01	.06	-.12	-.00	-.40	.55	.44	.19	-.18	.00	-.28	.30	1.00	.06	.62	.42	.37	-.06	.61	-.00	-.53	.14	.02	-.11	.26
290, V420 Adults attentive to small group	-.38	-.29	-.16	.18	.49	-.04	-.25	-.24	-.39	.48	.53	.02	-.82	-.68	.46	-.27	.01	1.00	.29	-.67	.78	.17	-.36	-.51	.03	.37	.08	.21	-.06
291, V421 Adults attentive to child	.45	.51	-.02	.18	.13	.17	-.04	-.07	.00	.21	.36	.06	-.33	-.36	-.18	.10	.62	.29	1.00	.42	.26	.08	.11	-.18	-.37	.18	-.15	-.18	.23
296, V438 Adult focus, one child	.60	.48	.01	.10	-.26	.22	-.01	-.11	.22	-.03	-.12	-.10	.66	.47	-.50	.20	.42	-.67	.42	1.00	-.41	-.03	.53	.32	-.29	-.09	.08	-.67	.01
298, V440 Adult focus, small group	-.06	-.05	-.33	.20	.51	-.06	-.06	-.33	-.46	.83	.77	-.06	-.64	-.54	-.35	-.10	.37	.78	.26	-.41	1.00	.22	-.07	-.44	-.15	.34	-.13	-.07	-.01
307, V452 Adult open to children	.07	.03	-.12	-.16	.00	.63	-.07	.27	.11	-.03	.35	-.49	-.04	-.23	.06	-.00	-.06	.17	.08	-.03	.22	1.00	-.20	.06	.12	.39	-.19	-.18	-.02
308, V453 Adult response to child question with question	.58	.53	-.01	.26	-.09	.04	-.47	-.17	-.20	.29	-.10	.31	.32	.52	-.22	.18	.41	-.36	.11	.53	-.07	-.20	1.00	.35	-.38	-.25	.04	-.23	-.05
311, V456 All child task comments	.14	.14	.35	-.16	-.27	-.09	.41	.28	.07	-.29	-.42	.09	.51	.60	-.28	.19	-.00	-.51	-.18	.32	-.44	.06	.35	1.00	-.46	-.21	-.11	-.23	-.34
361, V510 Child self instruction objects	-.53	-.51	-.06	-.01	-.06	.16	.46	.05	.42	-.18	.08	-.07	.11	.07	.04	-.50	-.53	.03	-.37	-.29	-.15	.12	.38	-.46	1.00	.17	-.16	.36	.15
364, V513 Child task resistence	-.05	.05	.27	.08	.10	.20	-.07	.33	-.01	.28	.50	-.09	-.29	-.22	.03	-.07	.16	.37	.18	-.09	.34	.39	-.25	.21	.17	1.00	-.27	.31	.06
365, V514 Two children concrete objects	.10	.08	.14	.00	.12	-.13	.01	-.32	-.22	-.03	-.26	.03	.11	-.04	-.12	.14	.02	-.08	-.15	.08	-.13	-.19	.04	-.11	-.16	-.27	1.00	-.08	-.05
366, V575 Small group concrete objects	-.30	.08	.27	.07	.11	-.13	.07	.35	-.21	-.15	.11	.41	-.40	-.12	-.10	-.19	-.11	.21	-.18	-.47	-.07	-.18	-.23	-.23	.36	.31	-.06	1.00	-.01
430, V599 Child self instruction, nonacademic	.44	.24	-.28	-.33	.21	.26	.32	.37	.12	-.15	-.06	-.13	-.21	-.16	-.01	-.41	-.24	-.06	.23	-.01	-.01	-.02	-.05	-.34	.15	.06	-.05	-.01	1.00

THIRD GRADE	V019 V24	V020 V25	V057 V65	V058 V66	V059 V67	V062 V70	V063 V71	V075 V83	V078 V86	V080 V88	V086 V94	V195 V239	V222 V344	V228 V350	V250 V372	V263 V390	V264 V394	V290 V420	V291 V421	V296 V438	V298 V440	V307 V452	V308 V453	V311 V456	V361 V510	V364 V513	V365 V514	V366 V515	V430 V599
VAR019, V24 Child selection	1.00	.10	.10	-.09	-.14	-.33	.10	.29	-.00	-.35	-.29	.50	-.23	.03	.30	.75	.40	.10	.31	.42	.11	.36	.28	-.04	-.32	.47	.25	99.00	.40
020, V25 Games, toys, play equipment	.10	1.00	.22	-.03	-.16	.21	.36	.75	.16	-.36	-.09	.29	-.21	.12	-.04	-.00	.66	.06	.31	.14	.18	.23	.24	-.01	-.68	-.28	-.08	99.00	-.02
057, V65 Guessing games, table games, puzzles	.10	.22	1.00	-.32	-.21	-.02	.63	.46	.06	-.02	.12	-.28	-.09	-.08	.20	-.15	.12	-.01	-.26	-.27	.33	.22	.09	.31	-.27	-.40	.12	99.00	.03
058, V66 Numbers, math	-.09	-.03	-.32	1.00	.05	-.52	-.22	-.49	-.25	-.08	.14	-.23	-.19	-.54	-.16	-.10	.28	.31	.33	.12	-.06	-.14	-.35	-.44	.04	-.06	-.13	99.00	-.10
059, V67 Reading, language	-.14	-.16	-.21	.05	1.00	-.25	-.02	-.33	-.47	.31	.37	-.54	-.41	-.39	.31	-.69	.07	.20	.19	-.23	.11	-.72	-.43	-.50	.17	-.23	.27	99.00	-.09
062, V70 Sewing, cooking, pounding	-.33	.21	-.02	-.52	-.25	1.00	.02	.38	.55	-.26	-.39	.16	.34	.33	-.20	-.04	-.39	-.46	-.27	-.08	-.32	-.01	.23	.59	-.16	-.08	-.16	99.00	-.27
063, V71 Blocks, trucks	.10	.36	.63	-.22	-.02	.02	1.00	.56	.00	-.08	.18	-.21	-.28	-.12	-.01	-.21	.21	-.00	-.17	-.27	.25	.22	.14	-.00	-.36	-.48	-.07	99.00	.03
075, V83 Wide variety of activities, one day	.29	.75	.46	-.49	-.33	.38	.56	1.00	.31	-.42	-.33	.39	-.11	.40	.07	.27	.32	-.29	.07	.13	-.02	.37	.58	.26	-.67	.19	.07	99.00	.05
078, V86 Teacher with one child	-.00	.16	.06	-.25	-.47	.55	.00	.31	1.00	-.51	-.38	.29	.52	.01	-.07	.19	-.15	-.32	-.24	-.17	-.22	.46	.01	.44	.01	.11	-.04	99.00	.14
080, V88 Teacher with small group	-.35	-.36	-.02	-.08	.31	-.26	-.08	-.42	-.51	1.00	.65	-.22	.03	.03	-.18	-.39	-.05	.32	.17	.04	.39	-.31	-.04	-.39	.54	.03	.27	99.00	.04
086, V94 Aide with small group	-.29	-.09	.12	.14	.37	-.39	.18	-.33	-.38	.65	1.00	-.38	-.23	-.28	-.26	-.63	.30	.57	.09	-.23	.70	-.25	-.31	-.66	.19	-.21	-.37	99.00	.21
195, V239 Math or science equipment	.50	.29	-.28	-.23	-.54	.16	-.21	.39	.29	-.22	-.38	1.00	.31	.50	-.20	.76	.25	-.18	.27	.66	-.19	.52	.52	.08	-.18	.51	-.20	99.00	.11
222, V344 Child interaction with adult, verbal	-.23	-.21	-.09	-.19	-.41	.34	-.28	-.11	.52	.03	-.23	.31	1.00	.14	-.51	.19	-.27	-.47	-.26	.36	-.33	.41	-.21	.22	.40	.23	-.48	99.00	-.11
228, V350 Child questions to adult	.03	.12	-.08	-.54	-.39	.33	-.12	.40	.01	.03	-.28	.50	.14	1.00	-.15	.36	-.23	-.12	-.20	.04	-.00	.14	.57	.27	-.12	.31	-.09	99.00	.25
250, V372 Child information to group	.30	-.04	.20	-.16	.31	-.20	-.01	.07	-.07	-.18	-.26	-.20	-.51	-.15	1.00	.04	-.07	.05	.04	-.25	-.01	-.16	.06	.31	-.11	-.08	.97	99.00	-.01
263, V390 Adult task comments to children	.75	-.00	-.15	-.10	-.49	-.04	-.21	.27	.19	-.39	-.63	.76	.19	.36	.04	1.00	.11	-.25	.18	.62	-.29	.44	.49	.17	-.13	.69	.08	99.00	.26
264, V394 All adult acknowledgment to children	.40	.66	.12	.28	.07	-.39	.21	.32	-.16	-.05	.30	.25	.27	-.23	-.07	.11	1.00	.29	.63	.42	.44	.21	.04	-.56	-.48	.01	-.14	99.00	.25
290, V420 Adults attentive to small group	.11	.06	-.01	.31	.20	-.46	-.00	-.29	-.32	.32	.57	-.18	-.46	-.12	.05	-.25	.29	1.00	.08	-.23	.77	-.15	-.21	-.63	.20	.17	-.07	99.00	.50
291, V421 Adults attentive to child	.31	.31	-.26	.33	.19	-.27	.17	.07	-.24	.17	.09	.27	-.26	-.20	.04	.18	.63	.08	1.00	.72	.05	-.16	.14	-.45	-.29	.09	.02	99.00	-.01
296, V438 Adult focus, one child	.42	.14	-.27	.12	-.23	-.08	-.27	.13	.17	.04	-.23	.66	.36	.04	-.25	.62	.42	-.23	.72	1.00	-.21	.24	.23	-.25	-.03	.45	-.28	99.00	.09
298, V440 Adult focus, small group	.11	.18	.33	-.06	.11	-.32	.25	-.02	-.22	.39	.70	-.19	-.33	-.00	-.01	-.29	.44	.77	.05	-.21	1.00	.03	-.12	-.38	-.03	.13	-.16	99.00	.65
307, V452 Adult open to children	.36	.23	.22	-.14	-.72	-.01	.22	.37	.46	-.31	-.25	.52	.41	.14	-.16	.44	.21	-.15	-.16	.24	.03	1.00	.26	.28	-.12	.22	.16	99.00	.19
308, V453 Adult response to child question with question	.28	.24	.09	-.35	-.43	.23	.14	.58	.01	-.04	-.31	.52	-.21	.57	.06	.49	.04	-.21	.14	.23	-.12	.26	1.00	.26	-.29	.25	.12	99.00	.07
311, V456 All child task comments	-.04	-.01	.31	-.44	-.50	.59	-.00	.30	.44	-.39	-.66	.08	.22	.27	.31	.17	-.56	-.43	-.45	-.25	-.38	.28	.26	1.00	-.11	-.09	.36	99.00	-.30
361, V510 Child self instruction objects	-.32	-.68	-.27	.04	.17	-.16	-.36	-.67	.01	.54	.19	-.18	.40	-.12	-.11	-.13	-.48	.20	-.29	-.03	-.03	-.12	-.29	-.11	1.00	.35	-.12	99.00	.09
364, V513 Child task persistence	.47	-.28	-.40	-.06	-.23	-.08	-.48	-.19	.11	.03	-.21	.51	.23	.31	-.08	.69	.01	.17	.09	.45	.13	.22	.25	-.09	.35	1.00	-.08	99.00	.61
365, V514 Two children concrete objects	.25	-.08	.12	-.13	.27	-.16	-.07	.07	-.04	-.27	-.37	-.20	-.48	-.09	.97	.08	-.14	-.07	-.02	-.28	-.16	-.16	.12	.36	-.12	-.08	1.00	99.00	-.03
366, V515 Small group concrete objects	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00
430, V599 Child self instruction, nonacademic	.40	-.02	.03	-.10	-.09	-.27	.03	.05	.14	.04	.21	.11	-.11	.25	-.01	.26	.25	.50	-.01	.09	.65	.19	.07	-.30	.09	.61	-.03	99.00	1.00

Appendix O-7

PEARSON CORRELATIONS OF SPONSOR CRITICAL VARIABLES USED IN IMPLEMENTATION SCORES--EDC

FIRST GRADE	V019 V24	V020 V25	V034 V39	V058 V66	V059 V67	V075 V83	V106 V114	V107 V115	V108 V116	V195 V239	V222 V344	V228 V350	V253 V375	V263 V390	V296 V438	V305 V450	V307 V452	V308 V453	V314 V460	V361 V469	V367 V516	V408 V574
VAR019, V24 Child selection	1.00	.32	.50	-.10	-.21	.36	.29	.44	-.13	-.44	.39	.26	-.21	.20	.14	.24	.26	.33	.30	.10	.63	.56
020, V25 Games, toys, play equipment	.32	1.00	.21	-.03	.03	.49	.46	.63	.20	.44	.26	.19	-.05	-.12	.04	.15	.21	.11	.23	.12	.17	.10
034, V39 General equipment present	.50	.21	1.00	.13	.12	.24	.01	.54	-.05	-.24	.16	.07	-.48	.25	-.25	.29	.26	-.02	.25	.30	.52	.29
058, V66 Numbers, math	-.09	-.03	.13	1.00	.37	-.15	-.11	.14	.37	.16	.34	-.22	-.20	-.25	.13	.26	-.34	-.58	.41	.03	.16	-.13
059, V67 Reading, language	-.21	.03	.12	.37	1.00	-.54	-.44	-.28	-.18	-.05	-.32	-.60	-.53	-.02	-.55	.46	.20	-.56	.44	.06	-.22	-.23
075, V83 Wide variety of activities, one day	.35	.49	.23	-.15	-.54	1.00	.62	.77	.43	.31	.62	.57	.32	-.27	.53	-.20	-.06	.46	.10	.40	.32	.04
106, V114 One child without adult	.29	.46	.01	-.11	-.44	.62	1.00	.55	.17	.17	.63	.79	.52	-.25	.45	-.09	.16	.63	.12	.17	.44	.30
107, V115 Two children without adult	.44	.63	.54	.14	-.28	.77	.55	1.00	.27	.19	.53	.41	-.14	-.01	.15	-.05	.04	.21	.26	.33	.53	.19
108, V116 Small group without adults	-.13	.20	-.05	.37	-.18	.43	.17	.27	1.00	.70	.36	.16	.34	-.43	.63	.04	-.58	.02	-.02	.55	-.23	-.47
195, V239 Math or science equipment	-.44	.44	-.24	.16	-.05	.31	.17	.19	.70	1.00	.15	.13	.34	-.35	.37	.03	-.25	.01	-.08	.20	-.36	-.47
222, V344 Child interaction with adult, verbal	.39	.26	.16	.34	-.32	.62	.63	.53	.36	.15	1.00	.64	.37	-.41	.69	-.08	-.14	.21	.41	.38	.56	.14
228, V350 Child questions to adult	.26	.19	-.07	.22	-.60	.57	.79	.41	.16	.13	.64	1.00	.51	-.20	.50	-.19	-.12	.58	-.15	.21	.28	.08
253, V375 Adult instructions to child	-.21	-.05	-.48	-.20	-.53	.32	.52	-.14	.34	.34	.37	.51	1.00	-.51	.73	-.27	.05	.51	-.37	.15	.03	-.10
263, V390 Adult task comments to child	.20	-.12	.25	-.25	-.02	-.27	-.25	-.01	-.43	-.35	-.41	-.20	.51	1.00	-.61	.27	.22	.11	-.15	-.19	.25	.44
296, V438 Adult focus, one child	.14	.04	-.25	.13	-.55	.53	.45	.15	.63	.37	.69	.50	.73	-.61	1.00	-.27	-.34	.36	-.01	.31	.12	-.14
305, V450 All children open questions	.24	.15	.29	.26	.46	-.20	-.09	.05	.04	.03	-.08	-.19	-.27	.27	-.27	1.00	.35	.02	.03	-.01	.12	.11
307, V452 Adult open to children	.26	.21	.26	-.34	.20	-.06	.16	.04	-.58	.25	-.14	-.12	.05	.22	-.34	.35	1.00	.35	.14	-.27	.28	.36
308, V453 Adult response to child question with question	.33	.11	-.03	.58	-.56	.46	.63	.21	.02	.01	.21	.58	.51	.11	.36	-.02	.35	1.00	-.28	.21	.30	.22
314, V460 All children positive affect	.30	.23	.25	.41	.44	.10	.12	.26	-.02	-.08	.41	.15	-.37	-.15	-.01	.03	.14	-.28	1.00	.12	.29	.23
361, V469 Child self instruction objects	.10	.12	.30	.03	.06	.40	.17	.33	.55	.20	.38	.21	.15	-.19	.31	-.01	-.27	.21	.12	1.00	.11	-.32
367, V516 Social interaction, children	.63	.17	.52	.16	-.22	.32	.44	.53	.23	.36	.56	.28	-.03	.25	.12	.12	.28	.30	.29	.11	1.00	.72
408, V574 Child movement	.56	.10	.29	.13	-.13	-.23	.04	.30	.19	-.47	.14	.08	-.10	.44	-.14	.11	.36	.22	.23	.32	.72	1.00

THIRD GRADE	V019 V24	V020 V25	V034 V39	V058 V66	V059 V67	V075 V83	V106 V114	V107 V115	V108 V116	V195 V239	V222 V344	V228 V350	V253 V375	V263 V390	V296 V438	V305 V450	V307 V452	V308 V453	V314 V460	V361 V510	V367 V516	V408 V574
VAR019, V24 Child selection	1.00	-.31	.17	.65	-.22	.07	.43	.59	.62	.60	.77	-.02	.42	-.17	.57	-.13	.01	-.34	-.31	.31	.18	-.11
020, V25 Games, toys, play equipment	-.31	1.00	.38	-.41	.09	.15	-.67	-.59	-.39	-.51	-.55	-.50	-.61	.24	-.36	-.17	-.20	-.19	.10	-.10	-.08	-.07
034, V39 General equipment present	.17	.38	1.00	.34	.20	-.49	-.28	.05	.09	.07	-.23	-.73	-.32	-.01	-.20	-.39	-.47	-.64	-.55	.31	.46	-.08
058, V66 Numbers, math	.65	-.41	.34	1.00	-.15	-.49	.43	.53	.66	.78	.41	-.28	.32	-.35	.17	-.39	-.16	-.45	-.50	.05	.54	-.24
059, V67 Reading, language	-.22	.09	.20	-.15	1.00	-.28	-.37	-.30	-.44	-.26	-.13	-.37	-.43	.52	-.34	-.33	-.22	-.12	-.23	-.29	.04	.29
075, V83 Wide variety of activities, one day	.07	.15	-.49	-.49	-.28	1.00	.02	-.16	-.17	-.27	.04	.40	.08	.28	.16	.37	.13	.25	.32	.17	-.60	.15
106, V114 One child without adult	.43	-.67	-.28	.43	-.37	.02	1.00	.78	.70	.64	.60	.40	.59	-.17	.32	-.05	.07	.20	-.13	-.04	.15	-.01
107, V115 Two children without adult	.59	-.59	.05	.53	-.30	-.16	.78	1.00	.74	.60	.64	.05	.43	-.27	.37	-.23	-.03	-.16	-.36	.15	.08	-.17
108, V116 Small group without adults	.62	-.39	.09	.66	-.44	-.17	.70	.74	1.00	.57	.59	.07	.60	-.51	.55	-.11	-.16	.25	-.33	.23	.35	-.41
195, V239 Math or science equipment	.60	-.51	.07	.78	-.26	-.27	.64	.60	.57	1.00	.43	.12	.35	-.17	.02	-.14	.03	-.09	-.26	.01	.45	.04
222, V344 Child interaction with adult, verbal	.77	.55	-.23	.41	-.13	.04	.60	.64	.59	.43	1.00	.33	.51	-.21	.68	.16	.37	.06	.07	-.00	.07	-.14
228, V350 Child questions to adult	-.02	-.50	-.73	-.28	-.37	.40	.40	.05	.07	.12	.33	1.00	.50	-.17	.35	.56	.52	.72	.56	.08	-.11	.11
253, V375 Adult instructions to child	.42	-.61	-.32	.32	-.43	.08	.59	.43	.60	.35	.51	.50	1.00	-.56	.73	.04	-.05	-.07	-.04	.27	-.09	-.40
263, V390 Adult task comments to children	-.17	.24	-.01	-.35	.52	.28	-.17	-.27	-.51	.17	-.21	-.17	-.56	1.00	-.61	-.05	.05	.07	.08	-.13	-.16	.80
296, V438 Adult focus, one child	.57	-.36	-.20	.17	-.34	.16	.32	.37	.55	.02	.68	.35	.73	-.61	1.00	.09	.06	-.03	-.01	.32	-.08	-.48
305, V450 All children open questions	-.13	.17	-.39	-.39	-.33	.37	-.05	-.23	-.11	-.14	.16	.56	.04	-.05	.09	1.00	.74	.40	.91	-.26	-.18	-.03
307, V452 Adult open to children	.01	-.20	-.47	-.16	-.22	.13	.07	-.03	-.16	.03	.37	.52	-.05	.05	.06	.74	1.00	.51	.85	-.33	-.03	.20
308, V453 Adult response to child question with question	-.34	-.19	-.64	-.45	-.12	.25	.20	-.16	-.25	-.09	.06	.72	-.07	.07	-.03	.40	.51	1.00	.51	-.24	.07	.28
314, V460 All children positive affect	-.31	.10	-.55	-.50	-.23	.32	-.13	-.36	-.33	-.26	.07	.56	-.04	.08	-.01	.91	.85	.51	1.00	.36	-.26	.11
361, V510 Child self instruction objects	.31	-.10	.31	.05	-.29	.17	-.04	.15	.23	.01	.00	.08	.27	-.13	.32	-.26	-.33	-.24	-.36	1.00	.12	.01
367, V516 Social interaction, children	.19	-.08	.46	.54	.04	-.60	.15	.08	.35	.45	.07	-.11	-.09	-.16	-.08	-.18	-.03	.07	-.26	.12	1.00	.04
408, V574 Child movement	-.11	-.07	-.08	-.24	.29	.15	-.01	-.17	-.41	.04	-.14	.11	-.40	.80	-.48	-.03	.20	.28	.11	.01	.04	1.00

Appendix P

TEACHER RESPONSE TO TRAINING EMPHASIS, BY SPONSOR AND SITE

Appendix P

TEACHER RESPONSE TO TRAINING EMPHASIS, BY SPONSOR AND SITE

This appendix records findings on 16 items in Question 25 of the Teacher Questionnaire. The question said: "How much emphasis was placed upon each of these items during pre- or in-service training for your teaching assignment this school year?" The emphasis on each item was rated by teachers and their sponsors as 1 = A great deal, 2 = Some, or 3 = None. The findings presented on the following pages show the percent of teachers agreeing with their sponsors. Only EDC did not rate the items, and is omitted here for that reason. The number of teachers responding for the other sponsor models is as follows: Far West 39, University of Arizona 33, Bank Street College 37, University of Oregon 36, University of Kansas 34, and High/Scope 40.

The items are as follows:

Item a--Helping the child feel important as a person

Item b--Developing enthusiasm for learning

Item c--Developing basic skills such as reading, writing, mathematics

Item d--Developing problem solving and critical thinking

Item e--Developing the child's ability to work and play cooperatively with other children

Item f--Helping the child to make choices and become an independent learner

Item g--Involving parents in their child's learning activities

Item h--Involving parents in the operations of the school

Item i--Diagnosing individual learning needs

Item j--Guiding children in activities appropriate to their needs

Item k--Cooperating effectively with other adults in the classroom

Item l--Working with small groups of children

Item m--Arranging the classroom environment for instruction (placement of furniture, materials, equipment, and the like)

Item n--Maintaining discipline and control in the classroom

Item o--Using rewards to influence pupil behavior

Item p--Developing or selecting materials to suit curriculum objectives.

Item a--Helping the Child Feel Important as a Person

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	1		
Berkeley		37.5%	2.00
Duluth		100.0	1.00
Lebanon		75.0	1.25
Salt Lake City		62.5	1.50
Tacoma		75.0	1.25
All sites		70.0	1.40
University of Arizona	1		
Des Moines		55.6%	1.44
Lakewood		55.6	1.56
Newark		71.4	1.29
Lincoln		75.0	1.50
All sites		64.4	1.45
Bank Street	1		
Brattleboro		83.3%	1.33
Fall River		75.0	1.25
New York City		57.1	1.57
Philadelphia		62.5	1.38
Tuskegee		62.5	1.50
All sites		68.1	1.41
University of Oregon	3		
East St. Louis		0 %	1.33
New York City		50.0	2.33
Racine		14.3	1.86
Tupelo		0	1.13
Providence		16.7	1.83
All sites		16.2	1.64
University of Kansas	2		
New York City		50.0%	1.50
Philadelphia		50.0	1.75
Portageville, Mo.		42.9	1.43
Kansas City, Mo.		37.5	1.63
Louisville		57.1	1.86
All sites		47.5	1.65
High/Scope	2		
Greenwood, Miss.		15.4%	1.15
Ft. Walton Beach		25.0	1.25
New York City		40.0	2.20
Greeley		33.3	1.33
Denver		37.5	1.63
All sites		30.2	1.43

Item b--Developing Enthusiasm for Learning

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	2		
Berkeley		28.6%	2.14
Duluth		50.0	1.50
Lebanon		25.0	1.25
Salt Lake City		37.5	1.63
Tacoma		37.5	1.38
All sites		35.7	1.56
University of Arizona	1		
Des Moines		77.8%	1.22
Lakewood		77.8	1.33
Newark		57.1	1.57
Lincoln		50.0	1.63
All sites		65.6	1.42
Bank Street	1		
Brattleboro		83.3%	1.33
Fall River		62.5	1.38
New York City		57.1	1.57
Philadelphia		50.0	1.50
Tuskegee		87.5	1.13
All sites		68.1	1.38
University of Oregon	2		
East St. Louis		33.3%	1.33
New York City		33.3	2.33
Racine		42.9	1.43
Tupelo		25.0	1.25
Providence		33.3	1.33
All sites		33.6	1.50
University of Kansas	2		
New York City		25.0%	1.25
Philadelphia		12.5	1.88
Portageville, Mo.		42.9	1.43
Kansas City, Mo.		50.0	1.75
Louisville		57.1	1.57
All sites		37.5	1.62
High/Scope	2		
Greenwood, Miss.		7.7%	1.08
Ft. Walton Beach		12.5	1.13
New York City		80.0	1.80
Greeley		66.7	1.67
Denver		50.0	1.50
All sites		43.4	1.35

Item c--Developing Basic Skills Such as Reading, Writing, Mathematics

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	2		
Berkeley		0 %	1.00
Duluth		37.5	1.38
Lebanon		87.5	1.88
Salt Lake City		37.5	1.38
Tacoma		37.5	1.38
All sites		40.0	1.41
University of Arizona	1		
Des Moines		77.8%	1.22
Lakewood		22.2	1.78
Newark		71.4	1.29
Lincoln		75.0	1.38
All sites		61.6	1.42
Bank Street	1		
Brattleboro		50.0%	1.50
Fall River		75.0	1.38
New York City		57.1	1.57
Philadelphia		50.0	1.50
Tuskegee		75.0	1.25
All sites		61.4	1.43
University of Oregon	1		
East St. Louis		88.9%	1.22
New York City		83.3	1.17
Racine		85.7	1.14
Tupelo		87.5	1.13
Providence		100.0	1.00
All sites		89.1	1.14
University of Kansas	1		
New York City		75.0%	1.25
Philadelphia		57.1	1.63
Portageville, Mo.		85.7	1.14
Kansas City, Mo.		25.0	1.75
Louisville		85.7	1.14
All sites		65.8	1.41
High/Scope	2		
Greenwood, Miss.		30.8%	1.46
Ft. Walton Beach		62.5	1.63
New York City		60.0	1.60
Greeley		83.3	2.17
Denver		62.5	1.63
All sites		59.8	1.65

Item d--Developing Problem Solving and Critical Thinking

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	1		
Berkeley		50.1%	1.50
Duluth		50.1	1.50
Lebanon		37.5	1.63
Salt Lake City		75.0	1.25
Tacoma		62.5	1.50
All sites		55.0	1.48
University of Arizona	1		
Des Moines		44.4%	1.67
Lakewood		22.2	1.78
Newark		0	2.00
Lincoln		75.0	1.25
All sites		35.4	1.67
Bank Street	1		
Brattleboro		50.0%	1.50
Fall River		37.5	1.75
New York City		42.9	1.86
Philadelphia		50.0	1.50
Tuskegee		25.0	1.75
All sites		41.1	1.68
University of Oregon	2		
East St. Louis		44.4	1.44
New York City		50.0	2.17
Racine		57.1	1.57
Tupelo		75.0	2.00
Providence		33.3	1.67
All sites		52.0	1.75
University of Kansas	2		
New York City		100.0%	2.00
Philadelphia		37.5	1.88
Portageville, Mo.		28.6	1.29
Kansas City, Mo.		12.5	2.13
Louisville		57.1	1.86
All sites		47.1	1.82
High/Scope	1		
Greenwood, Miss.		69.2%	1.31
Ft. Walton Beach		62.5	1.38
New York City		40.0	1.60
Greeley		83.3	1.17
Denver		87.5	1.13
All sites		68.6	1.30

Item e--Developing the Child's Ability to Work and Play Cooperatively with Other Children

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	2		
Berkeley		28.6%	2.43
Duluth		75.0	2.00
Lebanon		75.0	2.00
Salt Lake City		50.0	2.00
Tacoma		71.4	1.71
All sites		60.0	2.03
University of Arizona	1		
Des Moines		55.6%	1.67
Lakewood		33.3	1.89
Newark		28.6	1.86
Lincoln		62.5	1.50
All sites		45.0	1.73
Bank Street	1		
Brattleboro		66.7%	1.67
Fall River		50.0	1.63
New York City		42.9	1.71
Philadelphia		50.0	1.50
Tuskegee		25.0	2.00
All sites		46.9	1.70
University of Oregon	3		
East St. Louis		11.1%	1.67
New York City		66.7	2.67
Racine		57.1	2.29
Tupelo		0	1.50
Providence		33.3	2.17
All sites		33.6	2.00
University of Kansas	1		
New York City		50.0%	1.50
Philadelphia		37.5	1.88
Portageville, Mo.		14.3	1.86
Kansas City, Mo.		25.0	2.00
Louisville		42.9	1.71
All sites		33.9	1.82
High/Scope	1		
Greenwood, Miss.		76.9%	1.23
Ft. Walton Beach		62.5	1.38
New York City		20.0	2.25
Greeley		16.7	1.83
Denver		37.5	1.75
All sites		42.7	1.56

Item f--Helping the Child to Make Choices and Become an Independent Learner

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	1		
Berkeley		14.3%	2.29
Duluth		62.5	1.38
Lebanon		62.5	1.38
Salt Lake City		62.5	1.38
Tacoma		50.0	1.63
All sites		50.3	1.59
University of Arizona	1		
Des Moines		77.8%	1.22
Lakewood		33.3	2.00
Newark		57.1	1.43
Lincoln		50.0	1.63
All sites		54.6	1.58
Bank Street	1		
Brattleboro		33.3%	2.00
Fall River		62.5	1.50
New York City		42.9	1.57
Philadelphia		62.5	1.50
Tuskegee		62.5	1.38
All sites		52.7	1.57
University of Oregon	2		
East St. Louis		55.6%	1.78
New York City		16.7	2.50
Racine		71.4	2.00
Tupelo		75.0	1.75
Providence		16.7	1.83
All sites		47.1	1.94
University of Kansas	2		
New York City		50.0%	2.00
Philadelphia		50.0	1.75
Portageville, Mo.		14.3	1.43
Kansas City, Mo.		50.0	2.00
Louisville		14.3	1.43
All sites		35.7	1.71
High/Scope	1		
Greenwood, Miss.		100.0%	1.00
Ft. Walton Beach		75.0	1.25
New York City		60.0	1.40
Greeley		66.7	1.33
Denver		87.5	1.25
All sites		77.8	1.20

Item g--Involving Parents in Their Child's Learning Activities

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	2		
Berkeley		42.9%	1.71
Duluth		62.5	1.63
Lebanon		50.0	2.00
Salt Lake City		50.0	1.50
Tacoma		50.0	1.50
All sites		51.1	1.67
University of Arizona	1		
Des Moines		22.2%	1.78
Lakewood		11.1	2.11
Newark		71.4	1.43
Lincoln		25.0	1.88
All sites		32.4	1.82
Bank Street	2		
Brattleboro		50.0%	2.50
Fall River		12.5	1.63
New York City		57.1	2.14
Philadelphia		62.5	2.13
Tuskegee		37.5	1.88
All sites		43.9	2.03
University of Oregon	2		
East St. Louis		33.3%	1.78
New York City		50.0	2.17
Racine		71.4	2.00
Tupelo		37.5	1.63
Providence		83.3	2.17
All sites		55.1	1.92
University of Kansas	1		
New York City		75.0%	1.25
Philadelphia		37.5	1.75
Portageville, Mo.		85.7	1.14
Kansas City, Mo.		12.5	2.13
Louisville		42.9	1.86
All sites		50.7	1.68
High/Scope	2		
Greenwood, Miss.		46.2%	1.46
Ft. Walton Beach		50.0	1.50
New York City		40.0	2.60
Greeley		50.0	1.50
Denver		25.0	1.75
All sites		42.2	1.68

Item h--Involving Parents in the Operations of the School

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	2		
Berkeley		28.6%	2.14
Duluth		57.1	1.57
Lebanon		62.5	2.38
Salt Lake City		87.5	2.13
Tacoma		50.0	1.50
All sites		57.1	1.95
University of Arizona	1		
Des Moines		22.2%	1.89
Lakewood		22.2	2.11
Newark		42.9	1.57
Lincoln		37.5	1.75
All sites		31.2	1.85
Bank Street	2		
Brattleboro		66.7%	2.33
Fall River		37.5	1.88
New York City		57.1	2.14
Philadelphia		37.5	2.38
Tuskegee		50.0	2.00
All sites		49.8	2.14
University of Oregon	2		
East St. Louis		44.4%	1.89
New York City		33.3	2.00
Racine		71.4	2.00
Tupelo		12.5	1.38
Providence		66.7	2.00
All sites		45.7	1.83
University of Kansas	2		
New York City		25.0%	1.75
Philadephia		50.0	1.75
Portageville, Mo.		28.6	1.29
Kansas City, Mo.		50.0	1.75
Louisville		42.9	1.43
All sites		39.3	1.59
High/Scope	3		
Greenwood, Miss.		7.7%	1.69
Ft. Walton Beach		0	1.75
New York City		60.0	2.60
Greeley		0	1.67
Denver		25.0	1.88
All sites		18.5	1.85

Item i--Diagnosing Individual Learning Needs

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	1		
Berkeley		57.1%	1.57
Duluth		37.5	1.63
Lebanon		25.0	1.75
Salt Lake City		25.0	1.88
Tacoma		37.5	1.75
All sites		36.4	1.72
University of Arizona	1		
Des Moines		55.6%	1.56
Lakewood		44.4	1.78
Newark		42.9	1.71
Lincoln		37.5	2.00
All sites		45.1	1.76
Bank Street	1		
Brattleboro		66.7%	1.33
Fall River		75.0	1.38
New York City		42.9	1.71
Philadelphia		50.0	1.63
Tuskegee		50.0	1.50
All sites		56.9	1.51
University of Oregon	2		
East St. Louis		22.2%	1.44
New York City		33.3	2.67
Racine		28.6	1.86
Tupelo		37.5	1.38
Providence		33.3	1.67
All sites		31.0	1.75
University of Kansas	2		
New York City		25.0%	1.25
Philadelphia		37.5	2.13
Portageville, Mo.		14.3	1.43
Kansas City, Mo.		50.0	2.25
Louisville		42.9	1.43
All sites		33.9	1.76
High/Scope	2		
Greenwood, Miss.		23.1%	1.23
Ft. Walton Beach		50.0	1.50
New York City		75.0	2.25
Greeley		83.3	2.17
Denver		50.0	1.75
All sites		56.3	1.64

Item j--Guiding Children in Activities Appropriate to Their Needs

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	1		
Berkeley		42.9%	1.71
Duluth		37.5	1.63
Lebanon		37.5	1.63
Salt Lake City		37.5	1.88
Tacoma		62.5	1.50
All sites		43.0	1.67
University of Arizona	1		
Des Moines		55.6%	1.56
Lakewood		33.3	1.89
Newark		42.9	1.57
Lincoln		25.0	2.00
All sites		39.2	1.76
Bank Street	2		
Brattleboro		50.0%	1.50
Fall River		12.5	1.38
New York City		42.9	1.71
Philadelphia		50.0	1.50
Tuskegee		37.5	1.38
All sites		38.6	1.49
University of Oregon	2		
East St. Louis		22.2%	1.44
New York City		33.3	2.33
Racine		28.6	1.57
Tupelo		42.9	1.43
Providence		16.7	1.50
All sites		28.7	1.63
University of Kansas	1		
New York City		50.0%	1.50
Philadelphia		25.0	2.00
Portageville, Mo.		85.7	1.14
Kansas City, Mo.		25.0	2.00
Louisville		71.4	1.29
All sites		51.4	1.62
High/Scope	1		
Greenwood, Miss.		84.6%	1.15
Ft. Walton Beach		62.5	1.38
New York City		25.0	2.00
Greeley		33.3	1.67
Denver		62.5	1.50
All sites		53.6	1.44

Item k--Cooperating Effectively with Other Adults in the Classroom

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	2		
Berkeley		50.0%	2.29
Duluth		37.5	2.38
Lebanon		25.0	1.75
Salt Lake City		62.5	2.13
Tacoma		75.0	1.75
All sites		50.0	2.05
University of Arizona	1		
Des Moines		55.6%	1.44
Lakewood		11.1	2.44
Newark		57.1	1.57
Lincoln		0	2.38
All sites		31.0	1.97
Bank Street	2		
Brattleboro		16.7%	2.50
Fall River		25.0	2.25
New York City		28.6	2.14
Philadelphia		37.5	1.63
Tuskegee		25.0	1.50
All sites		26.6	1.97
University of Oregon	2		
East St. Louis		0	2.11
New York City		50.0%	2.17
Racine		28.6	1.86
Tupelo		25.0	1.25
Providence		16.7	2.17
All sites		24.1	1.89
University of Kansas	1		
New York City		25.0%	1.75
Philadelphia		62.5	1.50
Portageville, Mo.		71.4	1.29
Kansas City, Mo.		37.5	2.00
Louisville		71.4	1.29
All sites		53.6	1.56
High/Scope	1		
Greenwood, Miss.		92.3%	1.15
Ft. Walton Beach		12.5	2.00
New York City		0	2.40
Greeley		0	2.17
Denver		25.0	2.25
All sites		26.0	1.85

Item 1--Working with Small Groups of Children

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	1		
Berkeley		28.6%	2.00
Duluth		25.0	2.00
Lebanon		50.0	1.63
Salt Lake City		50.0	1.50
Tacoma		25.0	1.88
All sites		35.7	1.79
University of Arizona	1		
Des Moines		66.7%	1.33
Lakewood		85.7	1.56
Newark		83.3	1.43
Lincoln		83.3	1.63
All sites		79.8	1.48
Bank Street	2		
Brattleboro		16.7	1.83
Fall River		12.5	1.38
New York City		57.1	1.57
Philadelphia		25.0	1.50
Tuskegee		0	1.00
All sites		22.3	1.43
University of Oregon	1		
East St. Louis		66.7%	1.33
New York City		66.7	1.33
Racine		71.4	1.71
Tupelo		75.0	1.25
Providence		100.0	1.00
All sites		76.0	1.33
University of Kansas	1		
New York City		100.0%	1.00
Philadelphia		50.0	1.63
Portageville, Mo.		85.7	1.14
Kansas City, Mo.		25.0	1.75
Louisville		71.4	1.29
All sites		66.4	1.41
High/Scope	1		
Greenwood, Miss.		100.0%	1.00
Ft. Walton Beach		75.0	1.25
New York City		40.0	1.60
Greeley		33.3	1.67
Denver		75.0	1.38
All sites		64.7	1.30

Item m--Arranging the Classroom Environment for Instruction (placement of furniture, materials, equipment, and the like)

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	1		
Berkeley		14.3%	2.29
Duluth		12.5	2.00
Lebanon		62.5	1.38
Salt Lake City		75.0	1.38
Tacoma		25.0	1.88
All sites		37.9	1.77
University of Arizona	1		
Des Moines		55.6%	1.56
Lakewood		33.3	2.00
Newark		71.4	1.29
Lincoln		25.0	2.00
All sites		46.3	1.73
Bank Street	2		
Brattleboro		0	2.33
Fall River		25.0	1.50
New York City		42.9	1.71
Philadelphia		37.5	1.63
Tuskegee		12.5	1.13
All sites		23.6	1.62
University of Oregon	1		
East St. Louis		11.1%	2.33
New York City		0	2.17
Racine		14.3	2.29
Tupelo		50.0	1.88
Providence		16.7	2.50
All sites		18.4	2.22
University of Kansas	2		
New York City		50.0%	1.50
Philadelphia		12.5	1.63
Portageville, Mo.		0	1.86
Kansas City, Mo.		50.0	2.00
Louisville		57.1	1.57
All sites		33.9	1.74
High/Scope	1		
Greenwood, Miss.		100.0%	1.00
Ft. Walton Beach		87.5	1.13
New York City		80.0	1.20
Greeley		33.3	2.17
Denver		75.0	1.25
All sites		75.2	1.28

Item n--Maintaining Discipline and Control in the Classroom

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	2		
Berkeley		28.6%	2.43
Duluth		62.5	1.63
Lebanon		62.5	2.38
Salt Lake City		87.5	2.13
Tacoma		50.0	1.75
All sites		58.2	2.05
University of Arizona	2		
Des Moines		55.6%	2.00
Lakewood		11.1	2.44
Newark		57.1	2.43
Lincoln		50.0	2.25
All sites		43.5	2.27
Bank Street	3		
Brattleboro		66.7%	2.67
Fall River		25.0	1.88
New York City		57.1	2.57
Philadelphia		25.0	2.00
Tuskegee		25.0	1.75
All sites		39.8	2.14
University of Oregon	1		
East St. Louis		44.4%	1.56
New York City		33.3	1.83
Racine		57.1	1.71
Tupelo		50.0	1.50
Providence		83.3	1.17
All sites		53.6	1.56
University of Kansas	2		
New York City		75.0%	1.75
Philadelphia		50.0	1.75
Portageville, Mo.		28.6	1.57
Kansas City, Mo.		75.0	1.75
Louisville		57.1	1.57
All sites		57.1	1.68
High/Scope	3		
Greenwood, Miss.		23.1%	1.62
Ft. Walton Beach		12.5	1.88
New York City		60.0	2.60
Greeley		50.0	2.50
Denver		37.5	2.13
All sites		36.6	2.03

Item o--Using Rewards to Influence Pupil Behavior

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	3		
Berkeley		71.4%	2.71
Duluth		0	2.00
Lebanon		37.5	2.38
Salt Lake City		62.5	2.63
Tacoma		75.0	2.75
All sites		49.3	2.49
University of Arizona	2		
Des Moines		44.4%	1.67
Lakewood		44.4	2.56
Newark		71.4	2.29
Lincoln		50.0	2.50
All sites		52.6	2.24
Bank Street	3		
Brattleboro		100.0%	3.00
Fall River		37.5	2.25
New York City		100.0	3.00
Philadelphia		50.0	2.38
Tuskegee		50.0	2.50
All sites		67.5	2.59
University of Oregon	1		
East St. Louis		88.9%	1.11
New York City		83.3	1.17
Racine		85.7	1.57
Tupelo		100.0	1.00
Providence		83.3	1.17
All sites		88.2	1.19
University of Kansas	1		
New York City		75.0%	1.25
Philadelphia		37.5	1.88
Portageville, Mo.		85.7	1.14
Kansas City, Mo.		62.5	1.38
Louisville		85.7	1.14
All sites		69.3	1.38
High/Scope	3		
Greenwood, Miss.		15.4%	1.38
Ft. Walton Beach		37.5	2.25
New York City		80.0	2.80
Greeley		66.7	2.50
Denver		50.0	2.38
All sites		49.9	2.10

Item p--Developing or Selecting Materials to Suit Curriculum Objectives

	Sponsor Rating	Percent of Teachers Choosing Same Rating as Sponsor	Rating Means
Far West	2		
Berkeley		42.9%	1.71
Duluth		87.5	2.13
Lebanon		75.0	1.75
Salt Lake City		62.5	1.63
Tacoma		50.0	1.75
All sites		63.6	1.79
University of Arizona	1		
Des Moines		50.0%	1.63
Lakewood		33.3	2.00
Newark		28.6	1.86
Lincoln		0	2.25
All sites		28.0	1.94
Bank Street	1		
Brattleboro		33.3%	1.67
Fall River		62.5	1.38
New York City		57.1	1.71
Philadelphia		25.0	1.75
Tuskegee		62.5	1.50
All sites		48.0	1.59
University of Oregon	2		
East St. Louis		11.1%	1.56
New York City		33.3	2.33
Racine		71.4	1.71
Tupelo		50.0	1.75
Providence		50.0	1.50
All sites		43.2	1.75
University of Kansas	2		
New York City		25.0%	2.25
Philadelphia		50.0	1.75
Portageville, Mo.		14.3	1.43
Kansas City, Mo.		50.0	1.75
Louisville		42.9	1.43
All sites		36.4	1.68
High/Scope	2		
Greenwood, Miss.		38.5%	1.54
Ft. Walton Beach		25.0	1.25
New York City		25.0	1.75
Greeley		50.0	1.50
Denver		37.5	1.63
All sites		35.2	1.51

Appendix Q

SPONSORS' FIELD SERVICE ORGANIZATION*

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*Information was not available on EDC.

Appendix Q

SPONSORS' FIELD SERVICE ORGANIZATION*

Management Plan for Far West Lab

Sponsor Personnel--Project Site Relationship

The relationship between sponsor personnel and project site personnel can best be illustrated by the following diagram. The sponsor staff works with or trains the Project Directors and Advisors who are then responsible for implementing the program in the classrooms.

Programmatic relationships are determined by sponsor perceived needs. Program staff best suited to meet the expressed needs are assigned to work with a project. Thus, there is a possibility that any of the staff members may relate to any of the projects.

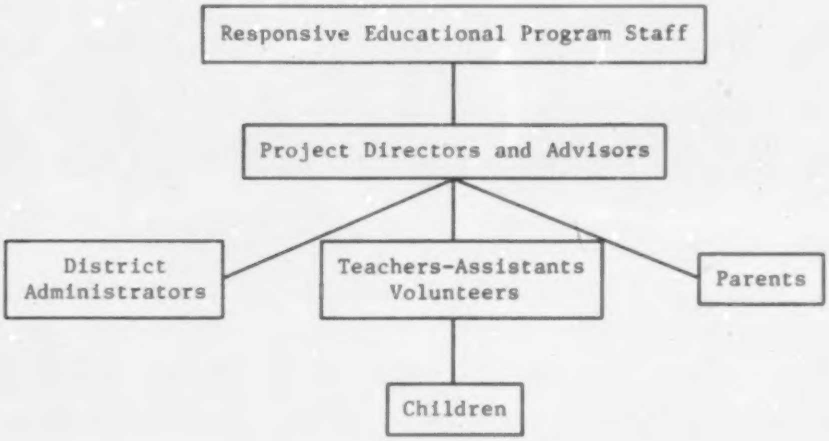
Responsive Educational Program Staff
Project Directors and Advisors
District Administrators
Teachers-Assistants Volunteers
Parents
Children

FIGURE Q-1 FAR WEST

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*Information was not available on EDC.

Management Plan for University of Arizona

1. Community-Level Staff

   - Classroom instructional staff--teaching assistants, teachers, and program assistant.
   - Parent Liaison personnel--work to organize, develop, and implement significant parent activity in the model.
   - School psychologists and their aides--serve as consultants to instructional personnel and parents concerning learning and adjustment in children.

2. Instructional, Psychological Services, and Parent Involvement Field Representatives

   - Together with their community counterparts (program assistants, parent coordinators and psychologists), provide the vehicle for information transmission among system components and the means for implementing the multiplier effect.
   - Travel in the field to offer support and guidance to training implementation personnel.
   - Communicate to their community counterparts the pertinent research findings that have been tested and demonstrated on a limited scale within program classrooms at Ochoa Elementary School.
   - Communicate back to the Center questions from the field that generate testable hypotheses for research or that indicate a need for further development and explication of the model.

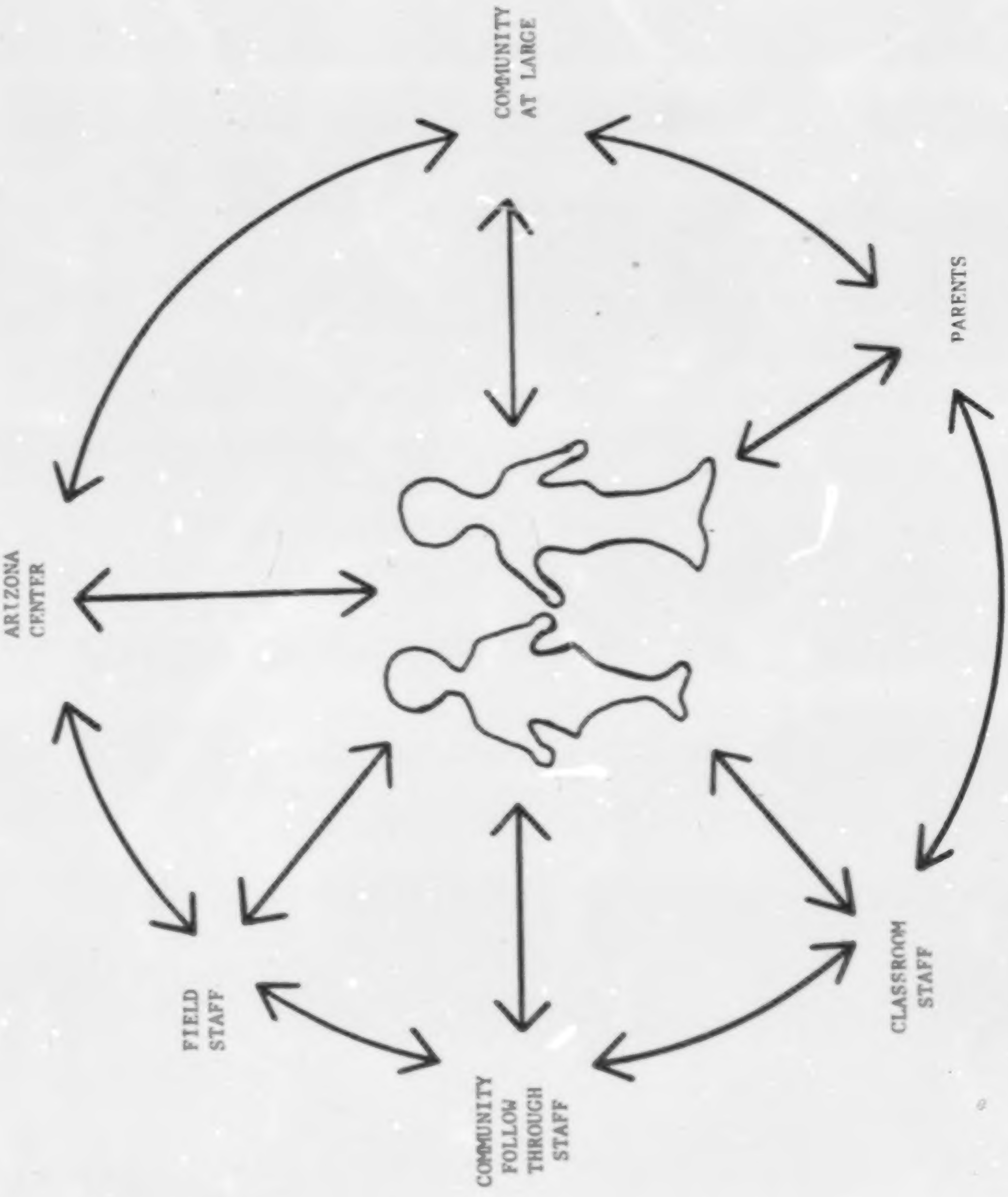
ARIZONA CENTER
COMMUNITY AT LARGE
PARENTS
CLASSROOM STAFF
COMMUNITY FOLLOW THROUGH STAFF
FIELD STAFF

FIGURE Q-2 THE ARIZONA SYSTEM OF EDUCATIONAL SERVICES

Management Plan for Bank Street College

The Bank Street field organization may vary at each site in order to meet the needs of the community. However, in each site there is a Field Representative who is the conveyor of the Bank Street model to the community. The responsibilities of the Field Representative are to plan with the Director of the Follow Through program, coordinate with the Staff Developers and communicate with the community, the school department personnel, the principal, and the parents. The Field Representative might be a local person or a person from Bank Street.

There also are Staff Developers who are locally based, but trained at Bank Street. The responsibility of the Staff Developer is to conduct on-site training. The number of Staff Developers at a site depends upon the number of classrooms there are to supervise. There is a ratio of ten classrooms to one Staff Developer.

In some sites there are resource people who may specialize in reading math, art, science, or social studies. Their expertise is called for by either teachers or the staff developer as they are needed.

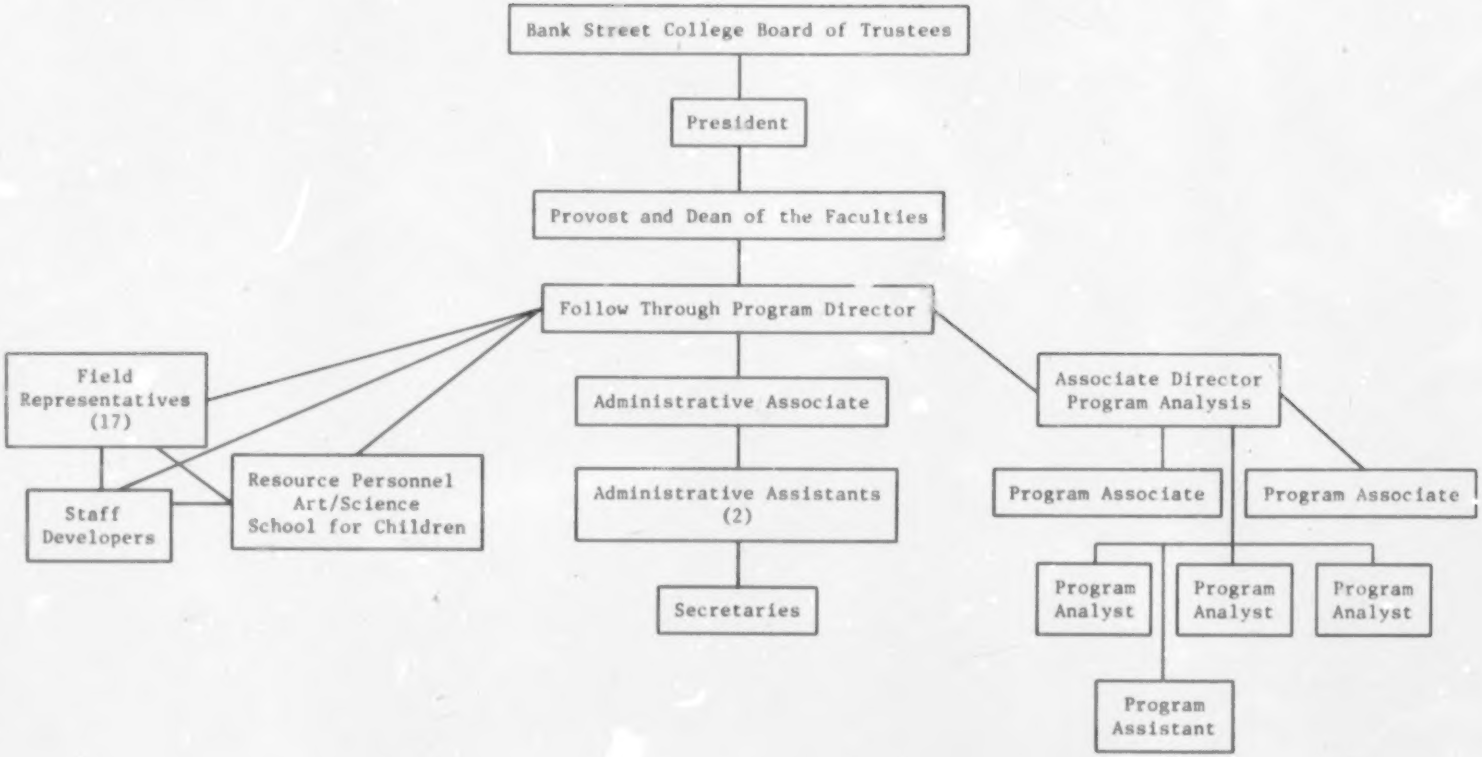
Bank Street College Board of Trustees
President
Provost and Dean of the Faculties
Follow Through Program Director
Field Representatives (17)
Staff Developers
Resource Personnel Art/Science School for Children
Administrative Associate
Administrative Assistants (2)
Secretaries
Associate Director Program Analysis
Program Associate
Program Associate
Program Analyst
Program Analyst
Program Analyst
Program Assistant

FIGURE Q-3 FOLLOW THROUGH ORGANIZATIONAL CHART

Management Plan of University of Oregon

1. Manager Coordinator

   - Maintain liaison between the project managers, consultants, project directors, and Director for Administration and Research and Director for Program and Training.
   - Schedule training meetings, prescribe and receive and edit bimonthly manager reports.
   - Review data from sites and take corrective action where needed or communicate problems to Director for A & R, handle telephone and written communication with their sites, trouble shoot problems or refer them to either Director as needed.
   - Keep Directors informed of the status of the field operation.

2. Project Managers and Consultants

   - Responsible for the effective and coordinated functioning of their projects.
   - Help design classroom routines, training sessions (pre- and inservice), and staff utilization.
   - Receive copies of all local data reports prior to computer analysis and are responsible for regrouping children, changing classroom procedures or instituting special workshops.
   - Work closely with field supervisors or local teacher supervisors and monitor their activities.
   - Review directly half of the videotapes being sent from the sites.
   - Conduct on-site evaluations of problems and prepare solutions, and send in monthly reports of process of their sites.
   - Participate in program review sessions with Director for A & R and assist in training workshops for local teacher supervisors and for teachers and aides.

3. Videotape Shop

   - Review videotapes from sites as prescribed.
   - Prepare feedback reports on site problems to manager coordinators.

4. Secretary

   - Management reports, site correspondence, manuscripts.

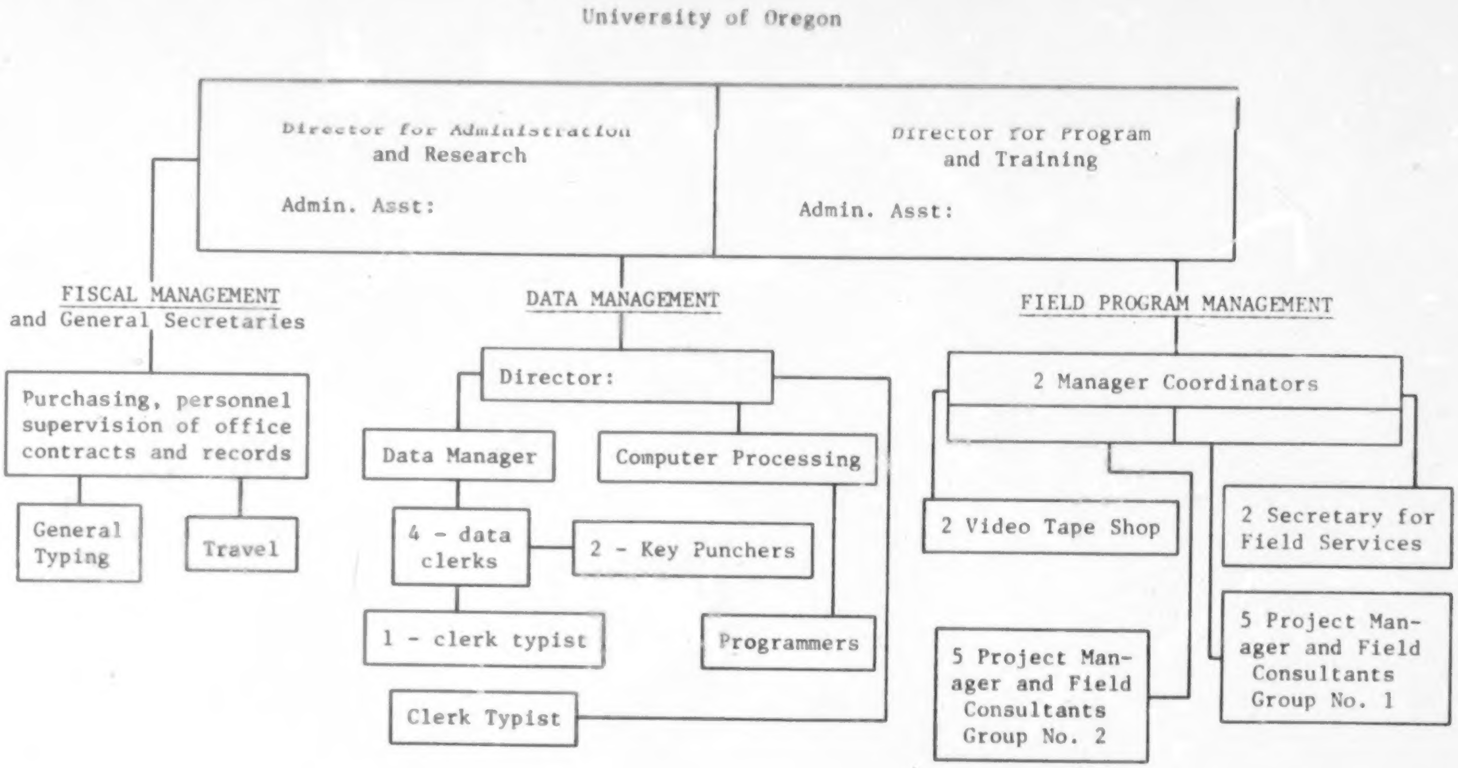
University of Oregon
Director for Administration and Research
Admin. Asst:
Director for Program and Training
Admin. Asst:
FISCAL MANAGEMENT and General Secretaries
Purchasing, personnel supervision of office contracts and records
General Typing
Travel
DATA MANAGEMENT
Director:
Data Manager
Computer Processing
4 - data clerks
2 - Key Punchers
1 - clerk typist
Programmers
Clerk Typist
FIELD PROGRAM MANAGEMENT
2 Manager Coordinators
2 Video Tape Shop
2 Secretary for Field Services
5 Project Manager and Field Consultants Group No. 2
5 Project Manager and Field Consultants Group No. 1

FIGURE Q-4 HOME SHOP ORGANIZATION 1974-1975

Management Plan for University of Kansas

1. District Advisor

   - Sponsor representative to local community in charge of training and trouble shooting.

2. District Advisor Liaison

   - People at other universities (near sites) who have worked with the model.

3. Program Director/Staff Trainer/Parent Trainer

   - Training and demonstration in classrooms, one at each class level, practicum work for all teachers, teacher aides, and parents.

University of Kansas

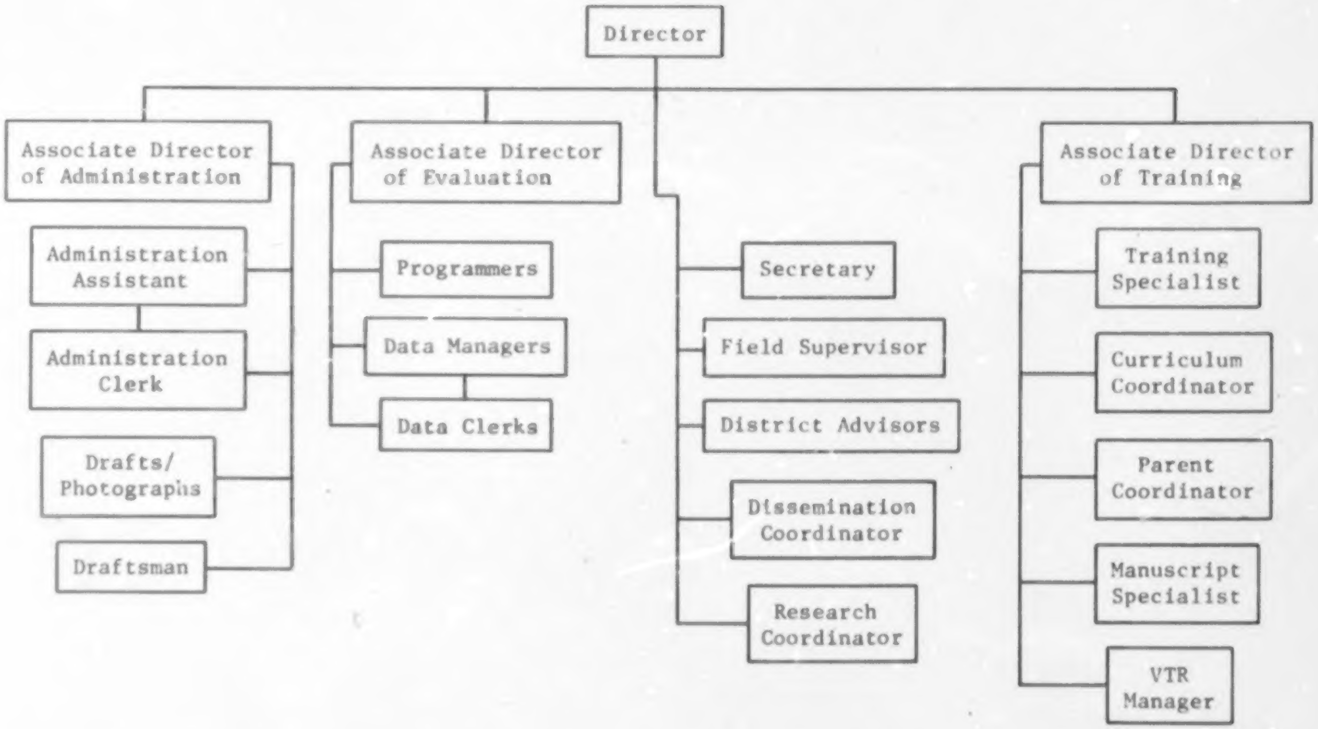
Director
Associate Director of Administration
Administration Assistant
Administration Clerk
Drafts/ Photographs
Draftsman
Associate Director of Evaluation
Programmers
Data Managers
Data Clerks
Secretary
Field Supervisor
District Advisors
Dissemination Coordinator
Research Coordinator
Associate Director of Training
Training Specialist
Curriculum Coordinator
Parent Coordinator
Manuscript Specialist
VTR Manager

FIGURE Q-5 TABLE OF ORGANIZATION BEHAVIOR ANALYSIS

Management Plan for High/Scope

1. Project Director

   - Coordinate the long-range research and development work of Follow Through staff.
   - Monitor the development of reports and proposals.
   - Assist with the theoretical development of the Cognitively Oriented Curriculum.

2. Field Services Coordinators for Denver and Ypsilanti Offices

   - Deliver administrative service to local sites (one week per project--East and West).
   - Coordinate work on administrator's guide and Parent Program.
   - Coordinate the work of support personnel in other departments with Early Elementary Department.
   - Coordinate the delivery of field services by field consultants.
   - Coordinate the production of year-end and progress reports.
   - Answer Foundation correspondence related to Follow Through.
   - Coordinate development of evaluation documents.

3. Research Director

   - Coordinates and directs research and evaluation activities of research associate, research assistants and research support staff.
   - Coordinates the development, analysis and interpretation of Productive Language, Mathematics and Classroom Observation Instruments.
   - Responsible for research reports included in all reports to local sites and National office.
   - Responsible for overall evaluation design and analysis plans for Follow Through.

4. Training and Development Coordinator

   - Provide overall coordination of in-house training for Foundation staff and training at sponsor site of local project staff.
   - Coordinate the production of curriculum training materials and the development of the training system.
   - Coordinate evaluation of training at the sponsor's site.
   - Assist in the revision and interpretation of language, math, and observation instruments.

5. Field Staff (Field Consultants and Program Consultants)

   - Revision of training materials, procedures, and evaluation in the field and at the sponsor's site are primary responsibilities of the field staff. This involves developing training objectives, strategies and materials and procedures for assessment of teacher and CA competencies.
   - Provide training for local site staff during October, February, and May workshops at the sponsor's site.
   - Responsible for supervising the on-site application of training procedures.
   - Provide four weeks of field service for each of two projects under their direct supervision.
   - Provide written field service reports which document services and serve as a working guide to further program implementation.
   - Train project personnel according to specific needs identified by the project and the Foundation.

6. Research Associate

   - Analyze data from Follow Through centers.
   - Proposes and conducts pilot projects.
   - Participates in planning with Follow Through service staff.
   - Writes research reports.

7. Research Assistant

   - Serve as liaison between Follow Through research and service components.
   - Participate in Follow Through planning.
   - Make arrangements for data collection and coding.
   - Propose and conduct pilot projects.
   - Participate in report writing.

8. Data Processor

   - Coordinate and record incoming data.
   - Score and keypunch data.
   - Set up and type coding manuals.
   - Maintain data files.

9. Media Specialist

   - Provide responsive, effective, and reliable media services for the design, development, and production of educational media for projects and operations.
   - Purchases, controls, and maintains media materials, equipment, and products.

10. Graphic Artist

    - Designs and produces graphic materials (titles, drawings, charts, graphs, posters, etc.) for videotaping, 33mm still photography, 8mm and 16mm motion picture photography, overhead transparency production and displays for workshops, practicums, etc.
    - Assists in layout of graphic production for print media (reports, brochures, training manuals, books, etc.).

11. Training Specialists

    - Develop and execute training procedures to be tested and implemented at TDC training workshops.
    - Provide field service to establish demonstration classrooms on site.
    - Work with training assistants to plan and execute training workshops at the TDC.
    - Work closely with consultants in the evaluation and revision of training materials.

12. Producer/Director

    - Assists field staff in the formulation and design of teacher, CA, training material.
    - Responsible for production and dissemination of audiovisual training materials.
    - Assists in design of training activities in which audiovisual materials are used.

13. Training Assistants

    - Work with training specialists in the development and implementation of training procedures.
    - Provide feedback on teacher and CA training materials during training workshops.
    - Implement experimental curriculum ideas with children in TDC.

14. Head Secretary

    - Coordinates activities of director, coordinators and field staff within the group and with other departments of the Foundation.
    - Coordinates written production for training workshops.
    - Assists in preparing reports to centers, SRI, and the federal government.
    - Processes all requests for materials, supplies, media, and office equipment through proper channels to attain desired results.
    - Conducts debriefing meetings with staff who have returned from field visits and transmit relevant information to them.
    - Trains and supervises clerk-typist in department operations.

15. Secretaries/Clerk-Typist

- Type, duplicate, and distribute all written materials.
- Record and prepare minutes of departmental meetings.
- Maintains files, records, supplies, and resource library.

High/Scope

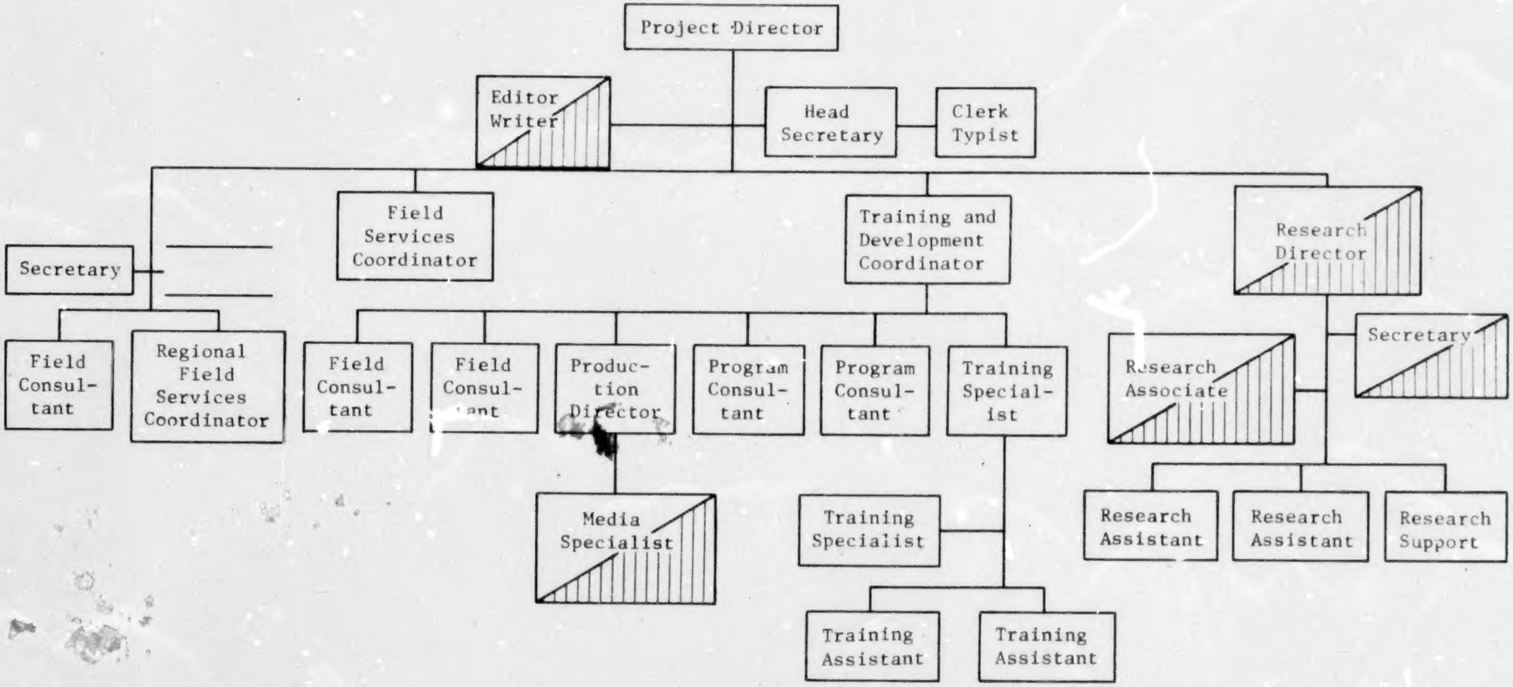
Project Director
Editor Writer
Head Secretary
Clerk Typist
Secretary
Field Consultant
Regional Field Services Coordinator
Field Services Coordinator
Field Consultant
Field Consultant
Production Director
Media Specialist
Program Consultant
Program Consultant
Training and Development Coordinator
Training Specialist
Training Specialist
Training Assistant
Training Assistant
Research Director
Secretary
Research Associate
Research Assistant
Research Assistant
Research Support

FIGURE Q-6 FOLLOW THROUGH ORGANIZATIONAL CHART

Appendix R

MEANS AND STANDARD DEVIATIONS ON VARIABLES USED IN DISCRIMINANT ANALYSIS

Table R-1

FIRST GRADE SPONSOR MEANS AND STANDARD DEVIATIONS ON 45 PEI AND CCI VARIABLES

Variables		Sponsor													
		Far West		University of Arizona		Bank Street		University of Oregon		University of Kansas		High/Scope		EDC	
Number	Name	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
25	Games, toys, play equipment present	6.15	2.13	7.46	1.34	7.94	1.39	4.11	1.73	5.69	1.30	7.39	1.91	7.26	.93
63	Story, music, dancing	5.79	4.75	8.76	7.79	8.40	8.26	1.81	2.22	4.16	3.51	6.02	5.31	8.14	7.54
64	Arts, crafts	8.87	5.05	8.67	5.52	7.07	4.87	2.76	3.65	2.80	2.67	7.20	5.11	8.86	6.19
65	Guessing games, table games, puzzles	1.54	2.22	2.09	2.65	1.44	2.06	.17	.45	1.44	1.05	2.28	3.28	1.54	2.08
66	Numbers, math, arithmetic	14.33	5.73	13.61	4.80	15.57	9.73	27.03	8.53	21.90	3.13	19.66	12.11	13.56	6.49
67	Reading, alphabet, language development	39.37	13.91	39.53	15.10	40.24	11.03	54.37	6.69	59.33	8.94	39.96	13.73	28.78	14.84
68	Social studies, geography	2.59	2.99	2.51	4.96	.97	1.76	2.26	4.52	1.94	2.69	1.30	3.21	1.44	3.25
69	Science, natural world	4.74	4.16	2.62	3.66	5.31	4.54	.32	.51	2.53	3.43	2.27	3.16	4.85	4.49
72	Dramatic play, dress-up	.88	1.53	.76	1.72	.71	1.48	.47	1.47	.54	1.69	.53	.67	2.28	2.90
82	Variety of activities, concurrent	2.09	.43	2.37	.62	1.94	.62	1.69	.28	1.99	.27	2.17	.61	2.40	.87
83	Variety of activities, over one day	7.33	1.35	7.30	2.11	7.05	1.63	4.48	1.57	5.65	1.50	7.07	1.63	8.37	1.91
85	Teacher without children	13.31	9.66	12.65	7.64	13.64	9.70	9.14	6.26	9.43	17.00	8.97	10.43	18.13	8.73
86	Teacher with one child	17.80	10.47	14.99	16.41	12.83	16.71	2.47	5.19	2.73	6.97	9.72	8.92	16.44	12.77
87	Teacher with two children	6.93	6.17	4.38	4.08	4.44	3.01	2.16	2.69	.31	.89	3.84	4.56	5.32	4.[illegible]0
88	Teacher with small group	25.63	15.84	39.79	16.82	35.27	12.05	52.54	16.44	64.06	23.52	[illegible].27	18.52	26.93	15.65
89	Teacher with large group	36.33	10.85	28.19	13.24	33.82	13.12	33.71	20.45	23.48	21.99	21.20	.2154	33.18	13.67
91	Aide without children	28.76	10.03	33.64	14.23	34.80	25.89	26.53	14.40	14.86	11.70	24.78	18.09	48.89	18.36
92	Aide with one child	28.10	23.96	6.20	4.59	7.33	6.94	4.20	4.68	1.56	2.38	7.00	7.40	13.56	13.16
94	Aide with small group	27.10	21.78	50.57	14.85	41.23	27.44	56.02	19.80	69.98	24.98	53.17	22.22	18.05	17.48
95	Aide with large group	9.66	9.15	5.98	6.00	11.69	12.82	12.42	12.32	13.03	15.57	9.36	9.87	13.44	10.55
109	One child with any adult	3.39	1.91	1.38	1.04	1.31	1.12	.46	.38	.73	1.02	1.37	1.23	1.87	1.51
111	Small group of children with any adult	16.18	10.93	28.02	10.14	26.18	15.22	37.84	15.55	62.55	26.59	45.57	22.20	14.48	6.37
114	One child independent	7.31	3.66	4.02	3.36	5.30	2.56	2.41	3.75	.73	.79	4.10	3.63	7.01	5.05
118	All children independent	39.04	11.62	34.92	12.84	33.80	7.51	22.20	8.22	5.59	3.82	23.11	12.45	42.13	10.58
122	Small group with teacher/ Math	6.10	5.05	11.95	18.64	10.14	10.36	10.12	17.45	7.89	24.37	32.42	23.11	13.28	11.09
123	Large group with teacher/ Math	19.08	17.20	5.06	10.07	17.77	18.85	18.46	18.84	2.87	6.77	7.93	16.02	15.43	24.64
126	Small group with aide/ Math	20.52	26.15	38.58	30.07	21.83	24.72	40.05	28.88	63.52	34.03	30.29	25.67	6.14	7.71
127	Large group with aide/Math	2.01	5.57	.19	.90	7.37	9.83	11.26	14.10	22.73	29.53	3.61	7.89	2.03	8.83
141	Personalized instruction in Math	6.97	5.23	2.62	3.26	4.31	5.40	.47	.52	.79	.95	3.15	4.29	6.31	7.05
142	All children independent/ Math	42.93	27.88	35.10	24.63	37.37	27.69	19.66	12.93	1.47	2.09	18.52	19.04	51.77	25.60
145	Small group with teacher/ Reading	9.95	7.60	19.77	11.62	15.16	7.11	19.62	12.86	24.09	8.52	26.87	16.32	13.09	11.84
146	Large group with teacher/ Reading	22.25	13.04	12.28	14.91	16.87	12.73	22.10	16.72	14.73	18.37	17.61	16.32	16.60	13.90
149	Small group with aide/ Reading	5.64	5.55	13.56	10.33	20.58	17.43	25.13	17.23	27.22	28.10	22.46	17.47	4.40	5.98
150	Large group with aide/ Reading	3.14	6.09	3.58	7.15	1.89	3.45	9.12	8.91	4.83	7.98	5.82	7.28	6.39	9.38
164	Personalized instruction in Reading	9.67	6.59	4.11	2.99	3.61	3.58	.69	.67	1.25	1.25	3.84	3.38	7.94	8.34
165	All children independent/ Reading	45.36	12.12	41.41	17.47	40.74	16.09	22.98	13.70	3.26	3.53	18.04	13.41	45.26	15.28
229	Teacher involved/Classroom Management	10.64	9.02	8.76	7.34	6.81	4.61	5.57	6.17	3.57	3.51	8.24	5.88	13.55	8.14
230	Aide involved/Classroom Management	13.46	9.42	20.82	10.48	15.52	15.38	17.94	9.95	7.87	6.40	17.57	17.31	27.47	15.18
231	Volunteer involved/Classroom Management	2.85	6.03	5.19	8.93	1.90	5.62	.19	.57	4.78	5.45	5.99	10.93	10.49	16.46
232	Among adults/Social Interaction	.70	1.20	.46	1.58	1.05	2.35	.35	1.53	.94	2.58	1.49	4.10	1.16	1.61
233	Among adults and children/ Social Interaction	3.39	6.48	.61	1.32	1.50	3.30	.63	1.64	.63	1.48	3.09	7.60	2.98	4.29
234	Among children/Social Interaction	4.95	7.23	1.44	3.42	.67	2.03	.79	1.91	.10	.42	.37	.91	7.83	6.32
239	Math or science equipment/ Academic Actiyities	22.76	15.27	29.58	22.92	18.95	21.26	1.40	2.44	40.56	37.36	26.63	21.97	23.49	25.40
240	Texts, workbooks/Academic Activities	73.37	11.79	54.50	33.98	55.69	30.51	81.24	11.48	86.11	14.38	57.70	27.43	56.59	22.21
241	Puzzles, games/Academic Activities	28.90	17.74	14.83	16.61	11.83	16.00	1.82	3.04	1.67	3.91	18.79	24.19	17.38	15.61

Table R-2

THIRD GRADE SPONSOR MEANS AND STANDARD DEVIATIONS ON 45 PEI AND CCL VARIABLES

Variables		Sponsor													
		Far West		University of Arizona		Bank Street		University of Oregon		University of Kansas		High/Scope		EDC	
Number	Name	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
25	Games, toys, play equipment present	5.21	1.55	5.58	1.74	5.78	1.80	3.06	1.86	4.20	1.15	4.95	3.01	6.47	1.94
63	Story, music, dancing	5.75	4.58	5.21	5.57	8.09	5.78	1.34	2.35	2.36	4.17	2.48	3.03	5.38	3.68
64	Arts, crafts	4.52	4.24	6.53	4.66	7.58	6.39	.84	2.42	1.55	2.50	4.48	4.53	6.80	5.35
65	Guessing games, table games, puzzles	1.64	2.63	2.89	3.10	1.03	1.21	.53	.97	1.16	1.63	1.50	1.43	1.43	1.70
66	Numbers, math, arithmetic	17.55	8.42	16.01	7.15	19.56	6.31	27.40	7.62	21.92	4.63	16.17	8.38	24.22	8.04
67	Reading, alphabet, language development	40.56	12.72	41.69	12.19	37.58	12.85	57.60	11.24	58.79	10.04	45.77	10.79	37.05	11.36
68	Social studies, geography	2.13	3.20	2.86	4.94	6.43	8.92	2.80	5.58	4.79	4.40	2.23	4.16	1.48	2.89
69	Science, natural world	5.80	7.15	6.48	6.43	3.87	5.24	2.59	5.07	1.45	2.30	4.67	6.17	3.60	5.07
72	Dramatic play, dress-up	.74	1.37	.28	.79	.03	.10	.27	.86	.05	.17	.36	.71	.29	.61
82	Variety of activities, concurrent	1.83	.58	2.21	.59	1.52	.26	1.49	.23	1.83	.27	1.93	.56	1.85	.56
83	Variety of activities, over one day	7.18	1.51	7.01	1.56	6.37	1.35	3.57	1.16	4.67	1.62	6.56	1.59	6.55	1.72
85	Teacher without children	16.14	10.34	13.59	9.03	9.90	6.51	15.19	13.20	6.16	6.89	10.37	12.16	19.74	15.39
86	Teacher with one child	17.98	11.89	8.42	8.75	9.13	8.75	4.95	7.11	2.05	3.25	8.66	11.78	14.73	15.14
87	Teacher with two children	7.09	4.78	3.70	4.92	4.87	6.08	2.95	4.24	.65	1.18	2.83	3.55	3.89	2.93
88	Teacher with small group	22.75	15.06	44.31	15.90	36.23	17.55	28.60	20.13	49.51	32.22	50.87	23.97	32.15	13.76
89	Teacher with large group	36.03	13.07	29.98	14.87	39.87	17.59	48.31	27.50	41.63	30.24	27.28	17.82	29.48	18.04
91	Aide without children	39.54	20.58	27.28	16.96	30.50	14.63	33.04	21.26	13.31	11.53	24.29	16.15	40.45	18.70
92	Aide with one child	12.71	10.65	5.67	5.61	6.82	8.98	5.39	6.06	1.30	1.87	9.85	10.98	8.36	8.11
94	Aide with small group	27.11	16.13	56.56	17.37	42.71	19.54	35.01	20.45	61.72	29.93	48.79	19.74	29.08	13.06
95	Aide with large group	11.87	11.50	6.41	5.52	13.86	12.31	23.15	21.29	22.59	24.90	12.59	13.54	16.41	22.60
109	One child with any adult	2.24	1.42	.93	.92	1.07	1.20	.66	.62	.36	.44	1.30	1.35	1.30	1.02
111	Small group of children with any adult	12.84	6.86	32.23	11.95	24.63	15.50	19.90	13.30	45.81	33.28	37.74	18.64	15.65	6.71
114	One child independent	5.70	3.65	3.33	3.03	3.60	3.82	1.45	1.40	1.94	2.20	3.80	4.93	5.34	3.37
118	All children independent	41.46	9.43	32.57	13.32	26.96	12.18	30.95	13.64	10.61	10.89	25.40	12.51	45.36	21.30
122	Small group with teacher/ Math	9.12	8.99	23.75	25.68	12.75	9.32	4.40	7.51	1.19	1.87	20.06	21.72	12.50	11.33
123	Large group with teacher/ Math	22.34	22.21	11.41	15.59	30.51	27.95	31.16	35.02	14.15	26.53	15.27	18.46	26.40	28.98
126	Small group with aide/ Math	12.34	16.77	26.88	27.41	9.34	10.89	23.39	24.79	54.14	40.08	18.12	17.58	7.90	6.34
127	Large group with aide/ Math	5.77	9.00	1.01	2.82	10.34	13.18	10.87	11.00	19.59	27.80	5.56	11.86	5.57	10.25
141	Personalized instruction in Math	3.24	2.48	2.27	2.91	2.86	3.50	1.69	1.85	1.11	2.02	3.60	5.13	1.91	1.48
142	All children independent/ Math	44.10	15.61	27.41	16.54	33.81	22.55	27.99	20.72	8.12	11.82	29.83	23.99	43.30	27.32
145	Small group with teacher/ Reading	7.67	6.40	15.01	10.50	13.66	9.20	11.20	8.88	18.05	13.42	18.15	12.32	11.13	8.25
146	Large group with teacher/ Reading	22.19	18.78	19.12	14.87	24.85	20.40	36.08	23.34	20.31	18.41	18.85	13.80	22.84	16.13
149	Small group with aide/ Reading	6.16	4.46	16.64	13.70	16.07	12.06	7.08	8.10	34.28	25.68	21.43	16.48	10.57	6.86
150	Large group with aide/ Reading	4.32	8.52	3.12	4.68	7.25	9.71	10.85	15.43	13.79	17.57	8.42	10.12	6.46	6.97
164	Personalized instruction in Reading	5.46	3.50	2.66	4.26	3.01	4.74	1.24	1.25	.51	.79	2.45	2.58	3.62	3.83
165	All children independent/ Reading	52.33	18.61	37.62	19.23	30.02	16.46	32.89	17.17	8.63	11.56	24.48	13.90	41.00	19.77
229	Teacher involved/Classroom Management	7.48	6.95	6.50	6.97	6.06	5.26	10.42	10.51	4.22	4.62	7.95	6.20	13.06	11.62
230	Aide involved/Classroom Management	19.13	16.97	15.06	12.31	16.34	10.98	19.32	19.59	10.89	11.81	17.68	16.89	16.31	8.99
231	Volunteer involved/Classroom Management	4.14	7.23	2.57	3.84	3.95	5.62	1.51	3.12	1.56	3.75	1.77	4.36	2.96	6.67
232	Among adults/Social Interaction	.37	.92	.35	.99	.49	1.00	0.00	0.00	.78	1.77	.72	1.96	.40	.94
233	Among adults and children/ Social Interaction	3.44	5.87	.63	1.90	.97	1.60	1.31	3.24	2.23	4.21	1.91	3.08	2.81	6.07
234	Among children/Social Interaction	5.51	8.60	1.27	2.45	.95	1.45	6.24	12.21	2.11	4.25	.85	2.65	4.39	7.07
239	Math or science equipment/ Academic Activities	9.39	12.30	25.97	25.22	9.08	12.91	1.99	2.83	19.84	31.86	19.14	16.23	16.24	31.90
240	Texts, workbooks/Academic Activities	57.26	27.46	62.28	24.03	52.78	26.71	76.59	24.71	88.50	10.82	56.20	28.37	53.54	26.90
241	Puzzles, games/Academic Activities	19.75	21.57	9.49	16.27	11.22	13.15	.19	.56	8.01	21.90	10.55	8.35	7.09	9.96

Table R-3

FIRST GRADE SPONSOR MEANS AND STANDARD DEVIATIONS ON 32 FMO VARIABLES

Variables		Sponsor													
		Far West		University Of Arizona		Bank Street		University of Oregon		University of Kansas		High/Scope		EDC	
Number	Name	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
342a	Adult to child, verbal	31.40	5.43	31.39	4.11	33.50	6.66	31.47	4.13	30.37	2.44	28.85	5.73	28.18	5.21
343a	Child to adult, all verbal except response	4.57	1.60	3.60	1.82	2.76	1.71	.91	.86	2.33	1.38	4.46	2.87	3.02	1.47
350a	Child questions to adults	2.49	1.10	1.42	.87	1.31	.85	.51	.52	1.23	.84	1.47	.75	1.44	1.01
360a	Child responses, academic	6.49	2.61	6.80	2.98	8.94	4.14	12.38	3.10	12.32	2.45	7.52	2.45	6.68	2.78
363a	Child group responses to adult academic commands, requests, or direct questions	.86	.74	.84	.61	1.42	.94	6.56	2.46	1.08	1.02	1.68	1.26	.80	.77
365a	Adult responses to child requests or questions, non-academic	.97	.72	.69	.46	.54	.43	.27	.36	.24	.21	.70	.49	.58	.59
372a	Child presenting information to a group	.19	.48	.48	1.05	.21	.83	.06	.15	.15	.31	.17	.37	.04	.11
373a	Adult instruction, non-academic	3.60	3.24	5.79	5.80	3.98	3.11	2.25	1.84	2.29	2.05	2.05	2.21	3.88	4.24
374a	Adult instruction, academic	6.81	3.05	5.11	3.07	6.31	3.73	4.98	3.37	5.77	2.96	6.12	3.60	4.45	2.16
388a	Child task-related comments to adults	1.42	.86	1.30	.97	1.15	1.02	.27	.27	.93	.59	1.87	1.41	1.35	.63
390a	Adult task-related comments to children	1.77	1.68	2.21	2.51	1.60	1.31	.37	.32	.92	.53	.99	.90	2.72	2.96
394a	All adult acknowledgment to children	2.51	1.77	2.11	1.30	3.97	2.42	3.49	2.04	2.70	1.17	3.11	1.81	2.45	1.18
398a	All adult praise to children	1.23	.72	.95	.56	.83	.43	2.60	2.23	5.57	1.77	.95	.69	.73	.38
399a	Adult reinforcement with token, academic	.01	.02	.00	.01	.00	.00	.25	.54	3.77	1.74	.02	.08	.00	.00
405a	All adult corrective feedback to children	4.01	1.67	3.43	2.21	3.94	1.61	3.55	1.74	4.95	2.72	3.00	1.09	4.34	1.34
412a	Adult feedback to child responses to adult academic commands, requests, or questions	1.70	1.28	1.44	.73	3.34	2.45	4.75	2.57	4.89	1.28	2.36	1.44	1.84	1.05
438a	Adult communication or attention focus, one child	25.56	3.19	23.08	5.46	26.99	5.77	13.51	4.49	28.46	6.06	23.60	5.80	23.91	6.60
439a	Adult communication or attention focus, two children	.70	.60	.92	1.36	.47	.52	.37	.91	.19	.31	.41	.71	.67	.64
440a	Adult communication or attention focus, small group	4.31	3.62	9.97	6.88	6.59	3.58	16.36	6.13	7.23	4.49	9.28	5.72	3.80	2.19
441a	Adult communication or attention focus, large group	10.73	4.33	10.69	6.38	10.90	4.32	11.28	8.93	6.99	5.74	5.83	4.86	10.03	7.02
444a	Adult movement	2.31	1.45	2.75	1.69	1.67	.92	2.73	2.09	2.72	2.56	2.22	2.55	2.20	1.37
452a	Adult open-ended questions to children	.52	.48	.63	.52	.42	.43	.12	.14	.17	.16	.32	.28	.37	.41
454a	Child's extended response to questions	.39	.27	.94	.71	.30	.32	.39	.44	.61	.74	.34	.31	.36	.32
462a	All positive behavior	1.44	.90	.87	.94	1.93	1.89	.95	1.41	.85	.45	1.06	.94	1.59	1.44
463a	All negative behavior	.24	.63	.14	.15	.07	.11	.10	.21	.07	.07	.15	.15	.32	.28
465a	Adult feedback to children for behavior	1.51	.79	1.19	1.03	.89	.51	1.12	.62	.98	.86	1.09	.69	1.59	.80
509c	Child self-instruction, academic	10.67	9.74	11.30	7.90	14.16	5.77	11.30	8.00	24.47	6.98	14.04	6.88	11.53	5.72
510c	Child self-instruction, objects	4.06	4.75	4.44	5.16	4.60	3.99	.57	1.33	1.20	3.42	8.76	5.94	2.46	3.64
516c	Social interaction among children	4.18	2.98	2.83	2.39	1.69	1.51	2.19	1.77	1.46	1.28	3.34	2.84	2.39	1.74
546c	Child waiting	1.24	1.68	.35	.73	.46	1.36	.53	1.05	2.84	3.88	2.39	2.77	1.34	2.04
574c	Child movement	2.85	1.21	2.79	1.86	2.63	1.70	1.88	1.60	.98	1.03	1.84	1.71	2.79	1.98
587c	All child task-related comments	3.83	2.04	3.73	2.77	4.34	3.33	1.48	2.05	1.71	1.41	3.96	2.87	4.73	2.86

Table R-4

THIRD GRADE SPONSOR MEANS AND STANDARD DEVIATIONS ON 32 FMO VARIABLES

Variables		Sponsor													
		Far West		University of Arizona		Bank Street		University of Oregon		University of Kansas		High/Scope		EDC	
Number	Name	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
342a	Adult to child, verbal	29.18	3.82	29.98	7.24	30.34	4.07	32.38	7.02	26.84	4.59	31.95	3.29	28.53	5.16
[illegible]3a	Child to adult, all verbal except response	5.04	2.09	5.01	2.74	2.31	1.80	1.50	1.06	1.73	.76	3.79	2.33	5.42	4.12
350a	Child questions to adults	2.60	.84	2.47	1.62	.92	.87	.64	.78	1.19	.49	1.90	1.24	2.41	1.25
360a	Child responses, academic	6.12	2.89	6.32	3.37	4.98	2.94	12.46	4.67	10.79	3.19	7.63	2.39	7.35	3.04
363a	Child group responses to adult academic commands, requests, or direct questions	.90	1.05	.44	.44	.59	.54	5.92	3.63	.83	.82	.99	.88	.96	1.17
365a	Adult responses to child requests or questions, nonacademic	.90	.41	1.14	.98	.44	.41	.22	.29	.40	.34	.76	.62	.95	.68
372a	Child presenting information to a group	.85	1.25	.08	.18	.42	.82	.03	.07	.08	.27	.09	.24	.09	.26
373a	Adult instruction, nonacademic	4.25	3.54	4.71	4.83	6.08	3.30	1.23	1.49	1.44	1.43	2.67	1.65	2.37	2.30
374a	Adult instruction, academic	5.88	3.14	5.69	5.66	5.51	4.20	9.19	7.50	4.27	1.95	6.40	2.32	5.93	3.40
388a	Child task-related comments to adults	1.61	.86	1.73	1.63	1.28	1.05	.66	.50	.35	.35	1.22	.89	1.29	1.17
390a	Adult task-related comments to children	1.11	.57	2.04	3.23	1.45	1.05	.94	.96	.49	.43	1.00	.83	2.03	1.67
394a	All adult acknowledgment to children	2.46	.59	1.94	.80	2.92	1.84	2.80	1.53	3.93	2.02	3.00	1.62	1.35	1.05
398a	All adult praise to children	1.00	.69	.80	.66	.62	.34	1.96	1.69	2.95	1.66	.80	.91	.70	.73
399a	Adult reinforcement with token, academic	.01	.02	.00	.02	.00	.00	.04	.14	1.54	1.99	.01	.01	.00	.01
405a	All adult corrective feedback to children	3.50	1.54	2.79	1.69	5.20	3.41	2.72	1.80	5.09	1.64	4.57	1.78	4.38	1.75
412a	Adult feedback to child responses to adult academic commands, requests, or questions	1.32	.82	1.07	.61	1.49	1.19	3.59	1.54	4.57	2.80	2.52	1.65	1.34	.98
438a	Adult communication or attention focus, one child	25.68	6.10	20.92	5.57	22.49	4.88	14.14	6.28	29.53	4.01	28.42	5.24	26.03	7.36
439a	Adult communication or attention focus, two children	.80	.77	.41	.53	.56	.68	.94	1.31	.49	.94	.30	.40	.51	.69
440a	Adult communication or attention focus, small group	3.30	2.88	9.38	5.90	7.50	4.85	10.89	7.67	4.12	3.49	5.51	4.74	3.75	3.00
441a	Adult communication or attention focus, large group	9.92	4.17	9.90	6.11	12.94	5.39	16.15	9.15	7.89	6.24	6.40	4.34	9.91	6.63
444a	Adult movement	3.15	1.18	2.34	1.52	2.37	1.30	3.01	3.07	4.02	2.33	2.01	1.76	2.13	1.94
452a	Adult open-ended questions to children	.60	.37	.68	.69	.45	.29	.15	.17	.27	.27	.59	.47	.24	.33
454a	Child's extended response to questions	.64	.33	.55	.52	.46	.51	.34	.35	.43	.49	.23	.27	.59	.78
462a	All positive behavior	1.41	1.04	1.34	2.26	1.13	.95	.62	.62	.40	.27	.95	.83	1.41	1.36
463a	All negative behavior	.15	.16	.13	.17	.28	.33	.37	.40	.20	.43	.40	.36	.44	.47
465a	Adult feedback to children for behavior	1.05	.53	.85	.59	.96	.73	.96	.90	.88	1.54	1.56	1.14	2.01	1.45
509c	Child self-instruction, academic	21.21	9.16	10.44	8.39	14.44	13.46	17.07	6.23	24.65	9.48	13.75	6.02	15.37	7.62
510c	Child self-instruction, objects	3.68	6.89	1.93	3.59	3.58	3.86	2.75	6.44	1.62	2.73	5.65	6.92	4.10	6.61
516c	Social interaction among children	2.70	1.56	3.62	2.31	3.55	3.40	1.59	1.80	1.82	1.11	4.90	3.47	5.11	3.35
546c	Child waiting	.72	.98	.25	.51	2.53	3.15	.49	.95	2.91	3.33	.89	1.29	.70	1.14
574c	Child movement	3.24	2.11	2.40	1.61	2.10	1.81	1.11	.96	.95	.94	2.89	2.26	2.66	1.90
587c	All child task-related comments	4.75	2.62	3.09	2.91	4.07	3.32	2.63	1.88	1.41	2.02	3.37	2.57	2.54	2.30

Appendix S

COOPERSMITH AND INTELLECTUAL ACHIEVEMENT RESPONSIBILITY SCALE (IAR)

COOPERSMITH
SELF ESTEEM INVENTORY

BOOKLET T8

Group Test

THIS BOOKLET BELONGS TO:

____

EXAMINER'S COPY

SRI

SRI Adaptation of the
COOPERSMITH SELF ESTEEM INVENTORY

Time: 15–20 minutes

MATERIALS:

Coopersmith booklet, scoring pencil, and card for each child

PROCEDURE:

Say each item once and repeat if necessary

PRACTICE ITEMS:

Begin practice items by saying,

- OPEN YOUR BOOK TO THE FIRST PAGE. IN THIS BOOKLET THERE ARE SENTENCES THAT DESCRIBE HOW SOMEONE MIGHT FEEL. AFTER EACH SENTENCE THERE ARE TWO ANSWERS. THE ANSWER ON THE LEFT SAYS "LIKE ME". THE ANSWER ON THE RIGHT SAYS "NOT LIKE ME".
- I AM GOING TO READ EACH SENTENCE ALOUD, THEN YOU DECIDE IF THAT SENTENCE SAYS SOMETHING THAT IS LIKE YOU OR SOMETHING THAT IS NOT LIKE YOU. IF THE SENTENCE SAYS SOMETHING THAT IS LIKE YOU, MAKE AN X IN THE SPACE AFTER "LIKE ME". IF THE SENTENCE SAYS SOMETHING THAT IS NOT LIKE YOU, MAKE AN X AFTER "NOT LIKE ME".
- HERE IS AN EXAMPLE. LOOK AT THE FIRST SENTENCE, SENTENCE A, IN YOUR BOOKLET AND PLACE YOUR CARD UNDER IT. I WILL READ IT TO YOU. "I LIKE TO WATCH T.V." IF THAT SENTENCE DESCRIBES HOW YOU USUALLY FEEL, MAKE AN X AFTER "LIKE ME" (point to the space after "Like Me"). IF THAT SENTENCE DOES NOT DESCRIBE HOW YOU USUALLY FEEL, MAKE AN X AFTER "NOT LIKE ME" (point to the space after "Not Like Me").
- LET'S TRY ANOTHER ONE. MOVE YOUR CARD DOWN TO SENTENCE B IN YOUR BOOKLET. I WILL READ IT TO YOU. "I'M A GOOD WORKER". DECIDE IF THAT SENTENCE IS LIKE YOU OR NOT LIKE YOU AND PUT AN X AFTER YOUR ANSWER.
- ARE THERE ANY QUESTIONS ABOUT WHAT YOU ARE TO DO? (Answer any questions)
- I WILL READ EACH STATEMENT TO YOU, THEN YOU MAKE AN X AFTER THE ANSWER THAT YOU CHOOSE. USE YOUR CARD TO FOLLOW ALONG WITH EACH STATEMENT THAT I READ TO YOU.
- LET'S START. REMEMBER, THERE ARE NO RIGHT OR WRONG ANSWERS.

BEGIN TEST:

Throughout the test each item should be said once but, any item may be repeated if it becomes necessary. Always say the item number. The children may also be reminded to mark their choice of "Like Me" or "Not Like Me".

- NUMBER 1 "I SPEND A LOT OF TIME DAYDREAMING."
- NUMBER 2 "I'M PRETTY SURE OF MYSELF."
- NUMBER 3 "I OFTEN WISH I WERE SOMEONE ELSE."
- NUMBER 4 "I'M EASY TO LIKE."
- NUMBER 5 "MY PARENTS AND I HAVE A LOT OF FUN TOGETHER."
- NUMBER 6 "I NEVER WORRY ABOUT ANYTHING."
- NUMBER 7 "I FIND IT VERY HARD TO TALK IN FRONT OF THE CLASS."
- NUMBER 8 "I WISH I WERE YOUNGER."
- NUMBER 9 "THERE ARE LOTS OF THINGS ABOUT MYSELF I'D CHANGE IF I COULD."
- NUMBER 10 "I CAN MAKE UP MY MIND WITHOUT TOO MUCH TROUBLE."
- NUMBER 11 "I'M A LOT OF FUN TO BE WITH."
- NUMBER 12 "I GET UPSET EASILY AT HOME."
- NUMBER 13 "I ALWAYS DO THE RIGHT THING."
- NUMBER 14 "I'M PROUD OF MY SCHOOL WORK."
- NUMBER 15 "SOMEONE ALWAYS HAS TO TELL ME WHAT TO DO."
- NUMBER 16 "IT TAKES ME A LONG TIME TO GET USED TO ANYTHING NEW."
- NUMBER 17 "I'M OFTEN SORRY FOR THE THINGS I DO."
- NUMBER 18 "I'M POPULAR WITH KIDS MY OWN AGE."
- NUMBER 19 "MY PARENTS USUALLY CONSIDER MY FEELINGS."
- NUMBER 20 "I'M NEVER UNHAPPY."
- NUMBER 21 "I'M DOING THE BEST WORK THAT I CAN."
- NUMBER 22 "I GIVE IN VERY EASILY."
- NUMBER 23 "I CAN USUALLY TAKE CARE OF MYSELF."
- NUMBER 24 "I'M PRETTY HAPPY."
- NUMBER 25 "I WOULD RATHER PLAY WITH CHILDREN YOUNGER THAN ME."
- NUMBER 26 "MY PARENTS EXPECT TOO MUCH OF ME."
- NUMBER 27 "I LIKE EVERYONE I KNOW."
- NUMBER 28 "I LIKE TO BE CALLED ON IN CLASS."
- NUMBER 29 "I UNDERSTAND MYSELF."

- NUMBER 30 "IT'S PRETTY TOUGH TO BE ME."
- NUMBER 31 "THINGS ARE ALL MIXED UP IN MY LIFE."
- NUMBER 32 "KIDS USUALLY FOLLOW MY IDEAS."
- NUMBER 33 "NO ONE PAYS MUCH ATTENTION TO ME AT HOME."
- NUMBER 34 "I NEVER GET SCOLDED."
- NUMBER 35 "I'M NOT DOING AS WELL IN SCHOOL AS I'D LIKE TO."
- NUMBER 36 "I CAN MAKE UP MY MIND AND STICK TO IT."
- NUMBER 37 FIRST I WILL READ THIS STATEMENT FOR THE GIRLS —LISTEN GIRLS. "I REALLY DON'T LIKE BEING A GIRL." NOW BOYS I WILL READ THIS STATEMENT FOR THE BOYS —LISTEN BOYS. "I REALLY DON'T LIKE BEING A BOY."
- TURN THE PAGE.
- NUMBER 38 "I HAVE A LOW OPINION OF MYSELF."
- NUMBER 39 "I DON'T LIKE TO BE WITH OTHER PEOPLE."
- NUMBER 40 "THERE ARE MANY TIMES WHEN I'D LIKE TO LEAVE HOME."
- NUMBER 41 "I'M NEVER SHY."
- NUMBER 42 "I OFTEN FEEL UPSET IN SCHOOL."
- NUMBER 43 "I OFTEN FEEL ASHAMED OF MYSELF."
- NUMBER 44 "I'M NOT AS NICE LOOKING AS MOST PEOPLE."
- NUMBER 45 "IF I HAVE SOMETHING TO SAY, I USUALLY SAY IT."
- NUMBER 46 "KIDS PICK ON ME VERY OFTEN."
- NUMBER 47 "MY PARENTS UNDERSTAND ME."
- NUMBER 48 "I ALWAYS TELL THE TRUTH."
- NUMBER 49 "MY TEACHER MAKES ME FEEL THAT I'M NOT GOOD ENOUGH."
- NUMBER 50 "I DON'T CARE WHAT HAPPENS TO ME."
- NUMBER 51 "I'M A FAILURE."
- NUMBER 52 "I GET UPSET EASILY WHEN I'M SCOLDED."
- NUMBER 53 "MOST PEOPLE ARE BETTER LIKED THAN I AM."
- NUMBER 54 "I USUALLY FEEL AS IF MY PARENTS ARE PUSHING ME."
- NUMBER 55 "I ALWAYS KNOW WHAT TO SAY TO PEOPLE."
- NUMBER 56 "I OFTEN GET DISCOURAGED IN SCHOOL."
- NUMBER 57 "THINGS USUALLY DON'T BOTHER ME."
- NUMBER 58 "I CAN'T BE DEPENDED ON."

This Booklet was prepared by Stanford Research Institute, Menlo Park, Calif

INTELLECTUAL ACHIEVEMENT
RESPONSIBILITY SCALE

BOOKLET T7

Group Test

THIS BOOKLET BELONGS TO:

____

EXAMINER'S COPY

SRI

SRI Adaptation of the
INTELLECTUAL ACHIEVEMENT RESPONSIBILITY SCALE

INSTRUCTIONS AND PROCEDURE

MATERIALS: IAR Booklet and scoring pencil for each child

PROCEDURE: Each item should be said twice

BEGIN TEST: Introduce the test by saying:

- YOU SHOULD EACH HAVE A BOOKLET.

- THIS BOOKLET HAS SENTENCES WHICH TELL ABOUT LOTS OF THINGS THAT HAPPEN TO MANY OF YOU EVERY DAY. NOW, OPEN YOUR BOOKLET, BUT DO NOT MARK ANYTHING UNTIL I TELL YOU. I WILL READ THE FIRST PART OF THE SENTENCE. THEN I WILL READ TWO DIFFERENT ENDINGS FOR THE SENTENCE. IN YOUR BOOKLET THESE ENDINGS ARE MARKED "A" AND "B". (Demonstrate) CHOOSE THE *ONE* ENDING THAT TELLS HOW YOU USUALLY THINK OR FEEL. PUT AN X ON THE LETTER "A" IF THAT ENDING FITS YOU BEST. PUT AN X ON THE LETTER "B" IF THAT ENDING FITS YOU BEST. THERE ARE NO RIGHT OR WRONG ANSWERS; JUST ANSWER EACH QUESTION THE WAY YOU *REALLY* FEEL.

- I WILL READ THE FIRST PART OF THE SENTENCE AND EACH OF THE ENDINGS TWO TIMES. LISTEN CAREFULLY AND PUT AN X ON "A" OR "B" TO SHOW HOW YOU USUALLY FEEL. DO NOT MARK ANYTHING UNTIL I TELL YOU.

- THE FIRST SENTENCE IS "IF A TEACHER PASSES YOU TO THE NEXT GRADE, IT IS BECAUSE

    [A] SHE LIKED YOU."

    [B] YOU DID GOOD WORK."

- I'LL READ IT ONCE MORE. "IF A TEACHER PASSES YOU TO THE NEXT GRADE, IT IS BECAUSE

    [A] SHE LIKED YOU."

    [B] YOU DID GOOD WORK."

- NOW, PLEASE PUT AN X ON "A" OR "B"

- EVERYONE WILL DO HIS OWN WORK. PLEASE DO NOT TALK.

- NOW LOOK AT NUMBER 2. THE SENTENCE IS, "WHEN YOU DO WELL ON A SCHOOL TEST, IT IS BECAUSE

  A YOU WORK HARD."

  B THE TEST IS VERY EASY."

- I'LL READ IT ONCE MORE. "WHEN YOU DO WELL ON A SCHOOL TEST, IT IS BECAUSE

  A YOU WORK HARD."

  B THE TEST IS VERY EASY."

- NOW, *PLEASE PUT AN X ON "A" OR "B"*

  Continue with the test and remember to say each item twice

- NUMBER 3. THE SENTENCE IS, "WHEN YOUR SCHOOL WORK IS VERY HARD TO UNDERSTAND, IT IS BECAUSE

  A THE TEACHER ISN'T GIVING YOU ENOUGH HELP."

  B YOU AREN'T LISTENING TO WHAT SHE SAYS."

  Repeat the item. Throughout the test check to be certain that the children are marking either an "A" or "B". If at anytime they are not marking correctly, repeat the instruction.

- PLACE AN X ON "A" OR "B"

  Pause

- NUMBER 4. THE SENTENCE IS, "WHEN YOU CAN'T REMEMBER MUCH OF A STORY YOU READ, IT IS BECAUSE

  A THE STORY ISN'T ANY GOOD."

  B THE STORY ISN'T ABOUT SOMETHING YOU LIKE."

  Repeat the item.

  Pause

- NUMBER 5. THE SENTENCE IS, "IF YOUR MOTHER SAYS YOU ARE DOING WELL IN SCHOOL, IT IS BECAUSE

  A YOUR SCHOOL WORK IS GOOD."

  B YOUR MOTHER IS FEELING WELL."

  Repeat the item.

  Pause

- NUMBER 6. THE SENTENCE IS, "IF YOU DO BETTER THAN USUAL IN SOMETHING AT SCHOOL, IT IS BECAUSE

  A YOU WORK HARDER."

  B SOMEONE HELPS YOU."

  Repeat the item.

  Pause

- NUMBER 7. THE SENTENCE IS, "WHEN YOU LOSE AT A GAME OF CARDS OR CHECKERS, IT IS BECAUSE

  A THE OTHER PLAYER IS GOOD AT THE GAME."

  B YOU DON'T PLAY WELL."

  Repeat the item.

  Pause

- NUMBER 8. THE SENTENCE IS, "SUPPOSE A PERSON DOESN'T THINK YOU DO GOOD WORK.

  A YOU CAN MAKE HIM CHANGE HIS MIND IF YOU TRY TO."

  B SOME PEOPLE WILL THINK YOU DON'T DO GOOD WORK NO MATTER WHAT YOU DO."

  Repeat the item.

  Pause

- NUMBER 9. THE SENTENCE IS. "IF YOU FINISH A PUZZLE REAL FAST, IT IS BECAUSE

  A THE PUZZLE ISN'T VERY HARD."

  B YOU WORK CAREFULLY ON THE PUZZLE."

  Repeat the item.

  Pause

- NUMBER 10. THE SENTENCE IS, "IF SOMEONE TELLS YOU THAT YOU ARE DUMB, IT IS BECAUSE

  A HE IS MAD AT YOU."

  B WHAT YOU DID REALLY WASN'T VERY BRIGHT."

  Repeat the item.

  Pause

- NUMBER 11. THE SENTENCE IS, "IF YOU WANTED TO BECOME A TEACHER, SCIENTIST, OR DOCTOR AND DIDN'T MAKE IT, IT WOULD BE BECAUSE

  A YOU DIDN'T WORK HARD ENOUGH."

  B OTHER PEOPLE SHOULD HAVE HELPED YOU MORE."

  Repeat the item.

  Pause

- NUMBER 12. THE SENTENCE IS, "IF SOMETHING IS EASY TO LEARN AT SCHOOL, IT IS BECAUSE

  A YOU PAY ATTENTION."

  B THE TEACHER GIVES YOU LOTS OF HELP."

  Repeat the item.

  Pause

- NUMBER 13. THE SENTENCE IS, "IF A TEACHER SAYS TO YOU, 'YOUR WORK IS FINE', IT IS BECAUSE

  $\boxed{A}$ TEACHERS USUALLY SAY THAT TO ENCOURAGE PUPILS."

  $\boxed{B}$ YOU DID A GOOD JOB."

  Repeat the item

  Pause

- TURN THE PAGE

- NUMBER 14. THE SENTENCE IS, "WHEN ARITHMETIC OR NUMBER PROBLEMS ARE HARD TO WORK AT SCHOOL, IT IS BECAUSE

  $\boxed{A}$ YOU DON'T DO ENOUGH WORK ON THE PROBLEMS."

  $\boxed{B}$ THE PROBLEMS ARE TOO HARD."

  Repeat the item

  Pause

- NUMBER 15. THE SENTENCE IS, "IF YOU FORGET SOMETHING THE TEACHER SAYS IN CLASS, IT IS BECAUSE

  $\boxed{A}$ THE TEACHER DOESN'T SAY IT VERY WELL."

  $\boxed{B}$ YOU DON'T TRY VERY HARD TO REMEMBER."

  Repeat the item

  Pause

- NUMBER 16. THE SENTENCE IS, "IF YOU WEREN'T SURE ABOUT THE ANSWER TO A QUESTION THAT YOUR TEACHER ASKED YOU, BUT YOUR ANSWER TURNED OUT TO BE RIGHT, IT WOULD HAPPEN BECAUSE

  $\boxed{A}$ THE TEACHER WASN'T AS PARTICULAR AS USUAL."

  $\boxed{B}$ YOU GAVE THE BEST ANSWER YOU COULD THINK OF."

  Repeat the item

  Pause

- NUMBER 17. THE SENTENCE IS, "IF YOU REMEMBER MOST OF A STORY YOU READ, IT IS BECAUSE

  [A] THE STORY IS ABOUT SOMETHING YOU LIKE."

  [B] THE STORY IS GOOD."

  Repeat the item

  Pause

- NUMBER 18. THE SENTENCE IS, "IF YOUR MOTHER SAYS YOU'RE ACTING SILLY,

  [A] IT IS BECAUSE OF SOMETHING YOU DID."

  [B] IT IS BECAUSE SHE IS NOT FEELING GOOD."

  Repeat the item

  Pause

- NUMBER 19. THE SENTENCE IS, "WHEN YOU DO NOT DO WELL ON A SCHOOL TEST, IT IS BECAUSE

  [A] THE TEST IS VERY HARD."

  [B] YOU DON'T DO YOU WORK."

  Repeat the item

  Pause

- NUMBER 20. THE SENTENCE IS, "WHEN YOU WIN AT A GAME OF CARDS OR CHECKERS, IT IS BECAUSE

  [A] YOU PLAY REAL WELL."

  [B] THE OTHER PERSON DOESN'T PLAY WELL."

  Repeat the item

  Pause

- NUMBER 21. THE SENTENCE IS, "IF PEOPLE THINK YOU DO GOOD WORK, IT IS BECAUSE

  🄰 THEY LIKE YOU."

  🄱 YOU DO THINGS WELL."

  Repeat the item

  Pause

- NUMBER 22. THE SENTENCE IS, "IF THE TEACHER DIDN'T PASS YOU TO THE NEXT GRADE, IT WOULD HAPPEN BECAUSE

  🄰 SHE HAD IT IN FOR YOU."

  🄱 YOUR SCHOOL WORK WASN'T GOOD ENOUGH."

  Repeat the item

  Pause

- NUMBER 23. THE SENTENCE IS, "IF YOU DON'T DO AS WELL AS USUAL IN SOMETHING AT SCHOOL, IT WOULD HAPPEN BECAUSE

  🄰 YOU DON'T DO YOUR WORK."

  🄱 SOMEONE BOTHERS YOU."

  Repeat the item

  Pause

- NUMBER 24. THE SENTENCE IS, "IF A BOY OR GIRL SAYS THAT YOU DO GOOD WORK, IT IS BECAUSE

  🄰 YOU DO THINGS WELL."

  🄱 THEY LIKE YOU."

  Repeat the item

  Pause

- NUMBER 25. THE SENTENCE IS, "IF YOU BECAME A FAMOUS TEACHER, SCIENTIST OR DOCTOR, IT WOULD HAPPEN BECAUSE

  A OTHER PEOPLE HELPED YOU WHEN YOU NEEDED IT."

  B YOU WORKED VERY HARD."

  Repeat the item

  Pause

- NUMBER 26. THE SENTENCE IS, "IF YOUR MOTHER SAYS YOU'RE NOT DOING WELL IN YOUR SCHOOL WORK, IT IS BECAUSE

  A YOUR SCHOOL WORK ISN'T GOOD."

  B YOUR MOTHER ISN'T FEELING WELL."

  Repeat the item

  Pause

- TURN THE PAGE.

- NUMBER 27. THE SENTENCE IS, "IF YOU ARE SHOWING A FRIEND HOW TO PLAY A GAME AND HE HAS TROUBLE WITH IT, THAT WOULD HAPPEN BECAUSE

  A HE WASN'T ABLE TO UNDERSTAND HOW TO PLAY."

  B YOU COULDN'T EXPLAIN IT WELL."

  Repeat the item

  Pause

- NUMBER 28. THE SENTENCE IS, "WHEN ARITHMETIC OR NUMBER PROBLEMS ARE EASY TO WORK AT SCHOOL, IT IS BECAUSE

  A THE PROBLEMS ARE EASY."

  B YOU WORK HARD ON THE PROBLEMS."

  Repeat the item

  Pause

- NUMBER 29. THE SENTENCE IS, "WHEN YOU REMEMBER SOMETHING THE TEACHER SAYS IN CLASS, IT IS BECAUSE

  [A] YOU TRY HARD TO REMEMBER."

  [B] THE TEACHER SAYS IT WELL."

  Repeat the item

  Pause

- NUMBER 30. THE SENTENCE IS, "IF YOU CAN'T WORK A PUZZLE, IT IS BECAUSE

  [A] YOU ARE NOT GOOD AT WORKING PUZZLES."

  [B] THE INSTRUCTIONS WEREN'T WRITTEN CLEARLY ENOUGH."

  Repeat the item

  Pause

- NUMBER 31. THE SENTENCE IS, "IF YOUR MOTHER TELLS YOU THAT YOU ARE BRIGHT AND CLEVER,

  [A] IT IS BECAUSE SHE IS FEELING GOOD."

  [B] IT IS BECAUSE OF SOMETHING YOU DID."

  Repeat the item

  Pause

- NUMBER 32. THE SENTENCE IS, "IF YOU ARE EXPLAINING HOW TO PLAY A GAME TO A FRIEND AND HE LEARNS QUICKLY, IT WOULD HAPPEN BECAUSE

  [A] YOU EXPLAINED IT WELL."

  [B] HE WAS ABLE TO UNDERSTAND IT."

  Repeat the item

  Pause

- NUMBER 33. THE SENTENCE IS, "IF YOU'RE NOT SURE ABOUT THE ANSWER TO A QUESTION YOUR TEACHER ASKS YOU AND THE ANSWER YOU GIVE TURNS OUT TO BE WRONG, IT WOULD HAPPEN BECAUSE

  A THE TEACHER WAS MORE PARTICULAR THAN USUAL."

  B YOU ANSWERED TOO QUICKLY."

  Repeat the item

  Pause

- NUMBER 34. THE SENTENCE IS, "IF A TEACHER SAYS TO YOU, 'TRY TO DO BETTER,' IT IS BECAUSE

  A SHE WANTS YOU TO TRY HARDER."

  B YOUR WORK ISN'T AS GOOD AS USUAL."

- CLOSE YOUR BOOK.

Appendix T

CORRELATION OF TEACHER QUESTIONNAIRE ITEMS AND IMPLEMENTATION SCORES

Table T-1

CORRELATIONS OF TEACHER-REPORTED PARTICIPATION IN TRAINING PROCEDURES WITH CLASSROOM IMPLEMENTATION SCORES BY SPONSOR

Training Procedure	Far West (N=40)		University of Arizona (N=33)		Bank Street (N=38)		University of Oregon (N=37)		University of Kansas (N=34)		High/Scope (N=40)		EDC (N=38)	
	r	p<	r	p<	r	p<	r	p<	r	p<	r	p<	r	p<
Materials mailed to you for your own use	-.20*	.223	.21	.232	-.06	.706	-.42*	.01	.16*	.370	-.32	.039	-.01	.946
Visits or demonstrations in your own classroom	-.02	.923	.07	.699	.18	.270	.08	.638	.22	.218	-.16	.339	.12*	.472
Visiting or observing work of other teachers in their classrooms	-.22	.166	-.32	.069	-.04	.813	-.17	.326	-.02	.914	-.20	.223	.23**	.177
Workshops during vacation periods	.04	.800	.21*	.252	.18	.278	.04	.824	-.14*	.449	-.02		-.07*	.668
Workshops on Saturday or after school	-.22	.158	-.44	.010	-.02	.902	.11	.536	-.10*	.596	-.09		-.25	.123
Consultation with specialists or trainers, not in your own classroom	.11	.504	-.07	.699	.05	.766	-.10	.550	.08*	.673	-.21	.183	.13*	.460
Videotapes of model teacher episodes	-.10	.542	-.11	.556	.20	.233	.05	.752	.09	.604	.29	.066	.11*	.511
Videotapes of yourself in teaching episodes	-.09	.560	.06	.752	-.01*	.957	.32	.057	.17	.335	.10	.537	.24*	.153

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*One teacher failed to respond to this item.

**Two teachers failed to respond to this item.

Table T-2

CORRELATIONS OF TEACHERS' YEARS IN FOLLOW THROUGH WITH IMPLEMENTATION SCORES
(First and Third Grades Combined)

	Far West (N=39)	University of Arizona (N=31)	Bank Street (N=37)	University of Oregon (N=37)	University of Kansas (N=34)	High/Scope (N=40)	EDC (N=37)
Correlations and Significance Levels:							
Mean	2.41	2.55	2.38	2.62	2.21	2.68	2.24
S.D.	1.14	1.34	1.14	1.30	0.95	1.19	1.23
r	.27	-.33	.43	.16	.14	.01	.004
p<	.10	.07	.008	.348	.440	.928	.981
Teachers' Years of Follow Through Experience (in the classroom):							
Not a complete year	0	0	1	0	0	0	2
One complete year	9	7	10	9	9	9	10
Two or more years	30	24	26	28	25	31	25
Total responding	39	31	37	37	34	40	37

Table T-3

CORRELATIONS OF TEACHERS' FORMAL EDUCATION WITH IMPLEMENTATION SCORES
(First and Third Grades Combined)

	Far West (N=40)	University of Arizona (N=33)	Bank Street (N=37)	University of Oregon (N=36)	University of Kansas (N=34)	High/Scope (N=40)	EDC (N=38)
Correlations and Significance Levels:							
Mean	3.60	3.76	4.14	4.000	4.26	3.70	3.37
S.D.	.63	.75	.82	.53	.75	2.68	.75
r	-.10	.14	.26	.12	-.23	-.02	-.12
p<	.510	.432	.116	.472	.200	.919	.468
Teachers' Levels of Education:							
Less than Bachelor's	0	0	0	0	0	0	2
Bachelor's	19	14	10	5	6	16	24
More than Bachelor's	18	13	12	26	13	20	8
Master's and above	3	6	15	5	15	4	4
Total responding	40	33	37	36	34	40	38

Table T-4

PERCENT OF TEACHERS SATISFIED WITH THE MODEL

	FW		UA		BC		UO		UK		HS		ED	
Questionnaire Items	First Grade	Third Grade	First Grade	Third Grade	First Grade	Third Grade	First Grade	Third Grade	First Grade	Third Grade	First Grade	Third Grade	First Grade	Third Grade
Would continue to teach in Follow Through	(N=20)	(N=20)	(N=16)	(N=17)	(N=19)	(N=19)	(N=20)	(N=17)	(N=16)	(N=16)	(N=21)	(N=19)	(N=20)	(N=18)
	90%	75%	68%	82%	100%	79%	90%	94%	69%	94%	91%	100%	95%	94%
Would change the model:	(N=20)	(N=20)	(N=16)	(N=15)	(N=19)	(N=19)	(N=19)	(N=17)	(N=17)	(N=17)	(N=21)	(N=19)	(N=19)	(N=18)
Not use approach	0%	0%	6%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
Change most of it	10	5	6	7	0	16	10	23	29	12	5	0	5	5
Continue but alter some	45	55	63	60	5	47	53	65	47	65	52	58	16	39
Continue unchanged	45	40	25	33	95	37	32	12	24	23	43	42	79	56
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table T-5

CORRELATION OF TEACHERS' SATISFACTION WITH THE MODEL WITH IMPLEMENTATION SCORES
(First and Third Grades Combined)

	Questionnaire Items	
Site	Would Continue to Teach in Follow Through	Would Change the Model
Far West (N=40)		
Mean	4.23	3.35
S.D.	1.19	.62
r	.04	-.17
p<	.810	.285
University of Arizona (N=33)		
Mean	4.12	3.16
S.D.	1.34	.69
r	-.14	-.18 [*]
p<	.427	.323
Bank Street (N=38)		
Mean	4.58	3.58
S.D.	.76	.64
r	.17	.24
p<	.301	.151
University of Oregon (N=37)		
Mean	4.41	3.00
S.D.	.90	.72
r	-.13	-.30 [**]
p<	.437	.072
University of Kansas (N=34)		
Mean	4.22	3.03
S.D.	1.08	.67
r	-.20 [*]	-.09
p<	.268	.622
High/Scope (N=40)		
Mean	4.68	3.40
S.D.	.66	.55
r	-.22	.01
p<	.175	.972
EDC (N=38)		
Mean	4.63	3.59
S.D.	.79	.69
r	-.17	.10 [**]
p<	.305	.546

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[*] Two teachers failed to respond to this item.

[**] One teacher failed to respond to this item.